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Abstract Book

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Medical Encyclopedia of Islam and Iran

A Velayati

Abstract

Since twelve years when the Traditional and Islamic Medicine Group was founded by The Academy of Medical Sciences of Islamic Republic of Iran., there has always been the interest to organize the research on traditional medicine, to lead it toward an objective, and to introduce its various aspects to the public.

On the other hand, the medical science has a long history in Iran. In addition to an abundance of facts which are currently know about the knowledge of Iranians of the medical science during the last fifteen centuries that is since Islam was introduced into Iran, there are a lot of evidences for the existence of the science the pre-Islamic Iran.

Islamic also attaches great importance to medicine and the Islamic medicine is among the most important branches of medicine in the world, which has done great services to the world's medicine, and in many cases the world's medicine is indebted to Moslem physicians.

Hence, the Traditional and Islamic Medicine Group of the Academy of Medical Sciences of Islamic Republic of Iran has made an abundance of studies in Persian language to methodize the researches made on the history of medicine. As a result of the studies, the Group decided to publish an encyclopedia in Persian named "The Encyclopedia of Islamic and Iranian Medicine" and the serious step to publish the encyclopedia was taken during the last year. Thanks to the support of Academy of Medical Sciences, especially Mr. Iraj Fazel Ph.D. as president of the Academy and the experience of different encyclopedias which are currently being published in Iran the case studies were made on the book and they finally led to the said reference published in four volumes in Persian including four thousand entries in alphabetical order. As a comparison, The Encyclopedia of Islam, whose second edition was completed several months ago in Holland includes some nine thousand entries; since, however, The Encyclopedia, we preferred to begin it with a smaller number of entries so as to continue at a higher pace and its first edition be completed in eight to ten years.

From the very beginning of the work, Other encyclopedias in Persian, Turkish, Urdu and European languages were considered and, having studied multiple articles from encyclopedias in the said languages, attempt was made that, in the first place, the structure of articles of such sources in Islamic medicine be derived and, in the second place, entries which are necessary to be included in The Encyclopedia of Islamic and Iranian Medicine be derived from the said references. Therefore, decision was mad that the entries of The Encyclopedia of Islamic and Iranian Medicine be derived from the existing encyclopedias in Iran about Islam and Iran. In addition, more than

300 volumes of books were examined which were specifically written on Iranian and Islamic scientists or on medicine in Islam and Iran, and in the end 2500 entries were derived from them. The entries were studied by the Traditional and Islamic Medicine Group and after 500 entries were ignored; those worthy of consideration were selected and prepared for the subsequent works.

The entries have been divided to the five groups: people, books, plants, specialized terms of Islamic medicine, and medical centers in the Islamic world.

At the same time, other activities were performed which seemed necessary for publishing the encyclopedia, including the booklet on the practical details of compilation of the book in Persian. All significant points on the Encyclopedia have been explained in it to enable the authors of articles to be introduced to the atmosphere of the Encyclopedia. Also attempt was made by examining the important Iranian libraries to gather major books written so far in different languages both in Iran and the world on the Islamic medicine to enable the authors of articles to use them. At the same time, on the basis of different encyclopedias published about Islam and Iran attempt was made that information be gathered about people who have experience in writing encyclopedic articles on Islamic medicine.

Today one may not deny the importance of transfer of science by electronic means. Hence, an Internet base was created for the Encyclopedia to enable contact with authors outside Iran too. The Internet base will be available through the base of the Academy of Medical Science of Islamic Republic of Iran.

Since all the foregoing has been completed during the last year, the process of ordering articles to be written for the Encyclopedia has been initiated in current year's autumn. The Traditional and Islamic Medicine Group of the Academy of Medical Sciences of Islamic Republic of Iran hopes to complete the job as fast as possible according to the time schedule in cooperation with all Islamic medicine scholars.

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Status of Traditional Medicine/Complementary and Alternative Medicine in the Eastern Mediterranean Region

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Abstract

The popularity and acceptance of Traditional/Complementary and Alternative Medicine (TCAM) in the treatment of various ailments has persisted over the millennia. The formulations are so made as to minimize the untoward effects and enhance synergism, thereby increasing the efficacy of the preparation as a whole. The idea was perhaps based on the logic of humoral concept and study of temperaments and allied factors in the patient. The concept of constitution of human being is well recognized by the modern physician including the genetic variations and drug therapy. By focusing on the innate healing abilities of the human organism, TCAM represents a perspective that conventional medicine lost in the twentieth century in its enthusiasm for external, technological solutions to all health problems.

Obviously, therefore, there is a need for a systematic investigation on the TCAM situation world wide. Incidentally, up to now, no effective and accepted tool has been available to monitor the global use of TCAM, and particularly in the Eastern Mediterranean Region (EMR) where the TCAM remains the major source of health care for majority of the population. It is already the people's own health care system and is well accepted by them. It has certain advantages over imported systems of medicine in any setting because, as integral part of the people's culture, it is particularly effective in solving certain cultural health problems. It is accessible and affordable in rural areas while the chemical drugs are not. In certain rural areas, the only available practitioners are traditional healers as the conventional physicians are usually available in urban areas and big cities. It can and does freely contribute to scientific and universal medicine. Its recognition, promotion and development would serve due respect for people's culture and heritage.

In the present work, an effort has been made to collect the secondary data on practices and utilization of TCAM in the Eastern Mediterranean Region (EMR) in order to assess the present status of TCAM in this region. To achieve this goal, the Ministers of Health of the countries of the Region were requested to furnish the relevant informations. While some countries responded, others did not. However, based on the informations received from the respondents and also from the literature review, the present report has been prepared which gives an overview of TCAM in the EMR. Perusal of the information/data reveals great variations between the countries of the region. These variations/aspects will be presented and discussed.

Although GDP, national health expenditure, physician: population ratio, and literacy rate are most important components of health, these are very low in some of the EMR countries. Yet, most of the countries are not taking due interest in the development and promotion of TCAM, which might contribute effectively to improve the health status of poverty stricken masses. Particularly because, the appropriate use TCAM of guaranteed quality and efficacy and safety in a cost-effective manner is a culturally accepted way of treating a range of diseases. Herbal Medicines are widely used in many countries of the EMR for treatment of variety of disorders and hence are of great importance as a mechanism to increase access to health care services. It is of particular importance in the rural areas where it is accessible and affordable, and the only available healers are traditional healers as the conventional healers are reluctant to work in these areas.

Overall, herbal medicines are culturally accepted and widely used in many countries of the EMR for treatment of variety of disorders and hence are of great importance as a mechanism to increase access to health care services. However, only few countries have some form of policy/mechanism on TCAM. Other countries need to develop their policy on TCAM to provide a sound basis in defining the role of TCAM in national health care delivery, ensuring that necessary regulatory and legal mechanisms are created for promoting and maintaining good practices, that access is equitable, affordable and that authenticity, safety and efficacy of therapies are ensured.

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Phytochemical studies of some Iranian medicinal plants

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Abstract

The Flora of Iran is very rich due to the diverse climatic and soil conditions in different ecological regions. Iran has around 10000 species of wild plant of which about 850 are considered being medicinally important. In the present work the phytochemistry of several Iranian medicinal plants and their possible usage will be discussed.

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Evidence - based CAM: Where does it stand?

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Abstract

In the past 10 years evidence - based medicine (EBM) has developed well in all aspects of allopathic medicine giving a new dimension to patient care including cost reduction and attention to medical ethics. With the public and medical community return to complementary and alternative medicine (CAM) in the last two decades there has been a call for evidence - based CAM ... in the same way that allopathic medicine has handled EBM ... but is this approach easily applicable to CAM noting the different CAM therapies and some of its practices which do not lend them selves to known scientific concepts. Few CAM therapies can be incorporated into EBM in the same way that allopathic medicine can this includes herbal medicine nutritional health and to some extent puncture. Furthermore, while many CAM practices can not be easily digested by what we call (EBCAM) yet this is requested by consumers. In this paper we will present and discuss all aspects that are rejected by modern medicine so that consumers can find a care in both directions giving priority to safety and effectiveness.

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A glance at the move from complementary alternative medicine (CAM) to integrative medicine in the United Kingdom (UK), United States (US), and World Health Organization (WHO)'s health care systems

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Abstract

Today's medical world has gained a growing appeal towards CAM/TM which can be seen in the strategies of US in the form of establishing National Center for Complementary and Alternative Medicine (NCCAM) at the National Institutes of Health (NIH) and White House Commission on Complementary and Alternative Medicine Policy (WHCCAMP) at the White House, the annual increase of integration of CAM classical education in UK's colleges and medical schools beside conventional medicine and strategies of WHO about the CAM. In this article we take a glance at some of the main strategies and programs of UK, US and WHO in the field of CAM/TM as examples of advanced modern medical system and their trend towards CAM/TM.

- 1-Increase of CAM/TM education integration in the medical education systems up to 60% (UK).
- 2-Emphasis of need to evaluate widely used CAM treatments for safety, efficacy and effectiveness by the use of modern experiments and clinical trials and presentation of credible data to curious public (NIH).
- 3-The need to train, encourage, and support of skilled investigators in both CAM and conventional medical academic communities and facilitating research, training, education and communication for interdisciplinary integration thus moving from CAM towards integrating medicine (WHO).

With respect to the trend seen in medically advance countries, and considering that TIM is one of the oldest and richest branches of CAM/TM, in order to avoid falling behind the frontiers of today's medicine which is now incorporating CAM/TM into its infrastructure, we propose that the IR of Iran must institute research, education, and therapy of TIM into the IRI health care delivery system.

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The future role of natural products in health care

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Abstract

For thousands of years, one of our many gifts from the Earth has been medicines to treat a myriad of ailments. In the developed world, approximately 25% of prescription products are derived from higher plants, and in the developing world, over 80% of the population relies on plants, in the form of traditional medicine, for their primary health care.

In 2050, the Earth will have a population of at least 10 billion, and most of the great rain forests and their species will have been destroyed. At that time, will we regret not examining our existing natural resources for their medicinal potential? What are the health care issues that we are leaving for our descendants as a result of our choices today? Where do our responsibilities as global citizens and scientists coalesce?

In this presentation, we will consider the need for more extensive biological evaluation of plants and their constituents, using alkaloids as an example. In addition, we will contemplate how access to the biome, the acquisition, analysis and dissemination of plant knowledge, the safety and efficacy of traditional plant remedies, and analytical and biotechnology enhancements are intimately involved in the sustainable development of drugs for improving health care on a global basis.

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Ethnoecology of wild mints in Turkey

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Abstract

Genus *Mentha* is represented by 15 taxa in Turkey, most common being *Mentha longifolia*, *M. suaveolens*, *M. pulegium* and *M. aquatica*. All are perennial herbs, flowering in summer and reproducing with the help of seeds as well as vegetatively. These taxa are widely used by locals as condiment as well as for the preparation of mint tea against flue, lung and stomach disorders, whooping cough, and as diuretic. The plants flourish equally well on sunny and shady habitats, however growth on moist habitats and alongside the watercourses is more profuse with dark green coloured bigger leaves, short roots, longer shoots and higher fruit production. The soils are generally of sandy-loam texture, being calcareous or non-calcareous in nature, pH varying between acidic to alkaline. Major constituents of the mint oil are menthone, isomenthone, pulegone and menthofuran. *M. longifolia* plants are 40-120 cm long, with white or purplish white coloured flowers, shoots contain 0.22% volatile oil, with 15-29% menthol content in dry matter and terpinolene lies around 20 ppm. *M. suaveolens* plants are 40-100 cm tall, with white or lilac coloured flowers, volatile oil content being 0.14%. *M. pulegium* is 10-40 cm tall, with lilac coloured flowers, volatile oil content in shoots is 0.12%, 60% being pulegon. These plants contain 90 ppm terpinolene. Pulegone in the samples growing on open dry flooded habitats is higher. *M. aquatica* plants are 20-90 cm tall, with lilac coloured flowers, shoots contain 0.42% volatile oil and 5-37% menthol in the dry matter. Only a small amount of *Oleum Menthae* is produced on the household basis in Turkey and major amount consumed by the pharmaceutical industry is imported. Out of 10 tons of *Mentha pulegium* exported by some mediterranean countries nearly 2 tons are from Turkey. This paper presents ethnoecological features of these wild mints on comparative basis and possibilities for their industrial evaluation.

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Documentation of indigenous knowledge about medicinal plants of Pakistan

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Abstract

Indigenous knowledge of wild and cultivated plant use is linked to local culture and history. It should be regarded as a body of knowledge that has continually developed over time without the outside assistance of formal science. Pakistan has 18 different types of ecological zones with a variety of habitat types like the coastal Mangrove forests, the desert subtropical foothills dry and moist areas, the alpine pastures etc. with diverse ethnic composition and ancient civilization. It has rich flora of over 6000 species of flowering plants, conifers and ferns with about 4000 fungal species and 1000 algae are so far reported to occur in different provinces including Kashmir. A very large number is found in northern and northwestern parts of the country.

It was estimated in early 1950 that up to 84% of the Pakistani population is dependent on traditional medicine for all or most of their medical needs. Even now, in some parts of the reported area the percentage may be the same or even higher. Western-style allopathic medicines are relatively expensive compared to the traditional herbal medicine, and for people living in hilly areas, usually not available. The use of medicinal plants to cure diseases and relieve physical suffering of both humans and animals, goes back to ancient times.

It has been reported that approximately 400-600 medicinal plants are more frequently used in herbal preparations and while several species, which are common in certain areas, are known to be used locally in traditional preparations, they have not been scientifically investigated for wider use. A lot more work therefore needs to be done with regard to collecting and compiling indigenous knowledge of plants, especially amongst living in the western mountains.

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Women indigenous knowledge of folk medicines

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Abstract

This study analysed women's indigenous knowledge of folk medicines with respect to human and livestock illnesses in selected areas in upper Swat, Buner, and Chitral Districts of the Malakand region of North West Frontier Province, Pakistan in the summer 2003.

This analysis was completed by a male and female multi-disciplinary team of specialists. Interviews were conducted using Questionnaires and Medicinal Herb Data Sheets, and Transect Walks where executed in each area visited. The women's general medical herb collection habits, use, preparations, storage and marketing were ascertained from the Questionnaires, whereas the Medicinal Herb Data sheets (using both male and respondents) provided comprehensive information on individual herbs employed in health care. The Transect Walks allowed the identified herbs of each area to be seen in their natural habitat, and provided a platform for the exploration of local herbs not known to be medicinally active by the community.

A total of 87 women interviewed during the course of this study supplied information on 143 different herb species, out of which 58 species were used for the treatment of humans and 85 species were found to be used for the treatment of both humans and livestock.

The result of the survey showed that the knowledge of the women in all 3 districts was appreciable, but it was observed that the elder women generally, and the women from Buner District had a superior understanding of folk medicine. On combining the knowledge recorded from the men and women, and from the Transect Walks, a list of 345 different medicinal plant species can be

formulated. The transect Walks revealed that on average the women only knew of 29% of the medicinally active herbs in their locality, whilst the men were familiar with 51%.

It can be stated that the use of herbs for medicinal purposes was prevalent throughout the regions visited, and this form of medication was administered to both adults and children. The advice of doctors was also sought by most women, the main reasons being for accidents, surgery and births. Preparations of medicinal herbs rarely went beyond drying (most sun-drying), some women dispensed the herbs in the forms of infusions, decoctions, syrups etc., however, the typical method employed was swallowing the dried powdered herb with water. The place and type of storage of medicinal plants varied immensely, and often poor techniques such as non-airtight containers and storing in partial sunlight were observed.

Cultivation and marketing was not a priority for the women interviewed, however, of the 3 Districts surveyed the highest incidence of cultivation occurred in Chitral District. Only 9 herbs were found to be marketed by the women throughout the survey, and this enterprise only occurred in Buner and Chitral District.

In response to the findings of this survey, a rationale has been developed for screening the ethnobotanical data base generated, and 44 species have been identified as either threatened species, and/or species of commercial value. It has been recommended that these species be included in the future planned medicinal plant research and development initiatives.

A primary recommendation concluded from this survey was the need for education of the women. This would embrace the techniques regarding medicinal herb use, including collection, preparation, storage and cultivation advice. Education, awareness, and possibly the formulation of women s enterprise groups was considered to be essential for improved health care and successful marketing.

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Integration of traditional and complementary medicine into the national health care delivery: the strategies taken by Malaysia

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Abstract

Over the years, the role of Traditional and Complementary Medicine (T/CM) in maintaining human health has significantly growing and could no longer be ignored. The World Health Organisation also recognised its contribution and encourages the member countries to integrate proven safe and effective traditional medicine into the national health care delivery. Unlike modern medicine, which is introduced and implemented based on scientific evidence, T/CM practices received its acceptance through the knowledge that is passed through many generations and attraction from various advertisement from the media. Hence, many issues especially in term of safety and efficacy, remain debatable. Malaysia, since 1996, had initiated many activities in coordinating this development with the formation of Standing committee on T/CM, that look into the coordination of the practice, training, product and research. Together with the appointed 5 umbrella bodies, the T/CM practitioners are monitored to ensure meeting the qualification and abate to the professional code, while the Traditional Medicine Product Act, regulate product and they can only have the claimed when it is proven by scientific data, resulting from proper research. The formation of Herbal Medicine Research Centre, National Committee on Herbal Medicine R&D and Global Information Hub on Integrated Medicine, showed Malaysia commitment in promoting and enhancing T/CM practice into the integrated medicine. More activities had been identified and that include the creation of T/CM Bill and this will be one of the major the trust of newly formed Traditional and Complementary Division, Ministry of Health, Malaysia.

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Herbal medicine in Egypt

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Abstract

Traditional medicine has been used since the dawn of history for treating human illness. Herbal medicine constituted the main type of traditional medicine. This type of treatment prevailed during different times of history in different countries, may be until the beginning of the 19th century. By that time a scientific revolution, in nearly all fields started. Much progress was made in the field of organic chemistry. This progress resulted in the synthesis of numerous organic compounds. Many of these compounds were found pharmacologically active and were used for treatments of many diseases replacing the traditional herbal medicine. The use of these organic compounds in treatment was encouraged by the ease of their preparation by synthesis and in quantities according to needs. Besides, the propaganda of the producing companies played a role in their spread use.

The use of such chemical compounds for treatment in conventional medicine was not far from risk. Serious side effects arose from the use of many such drugs, this led WHO to warn member states from using many such drugs.

The motto back to nature arose for seeking more safe drugs among member states.

As a matter of fact, not all natural compounds are free of toxicity or hazardous effects. Some of the drugs used in traditional medicine proved to be carcinogenic or acting badly on some vital organs of the body as, e.g. the liver.

Therefore the call for using herbal drugs for treatment was conditioned by necessity of such drugs being safe beside being effective of course.

A thorough scientific study should be carried out, especially on new drugs, to confirm their safety and efficacy. Such studies usually include:

a-Identification of the botanical origin of the drug including description of its main botanical features that facilitate its recognition, both in the entire and powdered forms.

b-A complete chemical analysis for identification of its different constituents, especially those responsible for its pharmacological action. A reliable method for estimating its main constituents is essential.

c-Pharmacological study, especially toxicity studies both acute and chronic to assure its safety.

d-Clinical studies are required, especially for new drugs to confirm their efficacy. For old drugs, their use for a very long time and in different countries for treatment of same diseases is a good parameter for their efficacy.

It is noteworthy that herbal drugs included in different Pharmacopoeas can be considered reliable drugs as most of them have passed all the necessary steps as aforementioned and such drugs are considered effective and safe when taken in the prescribed manner and reported doses.

Concerning the use of herbal drugs in Egypt, let's go back in history. Egypt has a very old and glorious history in using herbal medicine. May be Egypt was amongst the first countries in the world to use herbal medicine on a rather scientific bases. Description and formulating precriptions was carried out by a herbalist who was a specialized priest. He had the knowledge of formulating herbal drugs. Preparation of herbs as medicaments was carried out in a special room in the temple. This room was used as drug store. In this room, drugs were arranged according to their organs, e.g. roots, leaves, flowers, seeds, fruits. Special shelves were made for minerals, waxes, vegetable oils, volatile oils.

Drugs were formulated in different pharmaceutical forms such as teas, linaments, creams, lotions, pessaries, drops, etc according to type of disease and manner of application.

The herbalist was aided by a small boy who was taught and prepared to be the future herbalist.

Many of the prescriptions written on temple walls and, or in papyri scrolls revealed that ancient Egyptians were aware of the usefulness of many herbal drugs and used many of them in same purposes as they are used to-day and almost in the same manner.

It is just sufficient to mention the amazing mysterious miracle of embalming. Nowadays, and in spite of the enormous progress in all fields of science, the secret of embalming is still undiscovered.

The use of herbal medicine in Egypt, continued to flourish through different era from Ancient Egyptians through Roman time and first Arab islamic times.

In spite, however, of this glorious old history of using herbal medicine for treatment in Egypt, recent time witnessed a significant decline in this respect. Most treatments are carried out by conventional medicine. Treatment with herbal medicine is carried out as a folk medicine, by Attareens. Attareens usually sell spices and crude herbal drugs in their shops. They are not qualified persons but they have acquired their knowledge from old Arabian books as those of Ibn -Sina and Dawood El-Antaki. Most patients that seek remedy from Attareens belong to the poor class, mainly illeterated people.

A very important reason, in my opinion that lead to decline in use of herbal drugs in treatment, as supportive to chemical ones used in conventional medicine, lies in the ignorance of describing herbal medicines by physicians. Physicians, especially newly graduated ones, have no belief in herbal medicine, simply because they haven't studied their value in their faculties. Actually the syllabi of nearly all faculties of medicine in Egypt lack course dealing with herbal drugs. Therefore physicians do not realize the importance of such drugs and regard them as nothing but a folk type of treatment without scientific basis.

To encourage incorporating herbal medicine in conventional medicine, WHO held many symposia among member states. Each member state was advised to establish a committee including different specialists for planning health policy and choosing a list of herbal drugs that are most active, safe and common to be incorporated in primary health care services.

Unfortunately, until now, no such committee has been established. Ministry of health is considered the only organization responsible for planning and controlling all health services. Ministry of health established a committee responsible for registration of drugs. The rules governing registration of herbal drugs are nearly the same as those for chemical conventional drugs. Processes of registration are tedious and lengthy and therefore many herbal drugs producers prefer registering their products as food supplements rather than drugs.

Now in Egypt, there is a trend, as in all over the world, to make use of herbal drugs. People everywhere are getting more and more convinced by their efficacy, beside their safety and comparatively lower price. This trend is potentiated by the fear of the impact of adopting the GATT and Trips agreement in 2005 on conventional drug price.

Much efforts are now done to re-evaluate the Egyptian resources from medicinal plants and discover new ones. Much scientific work is being done to find out most appropriate herbs regarding their efficacy, safety and availability. The studies include the most suitable pharmaceutical forms for their incorporation. This task is taken to find drugs to be supportive to conventional medicine (not alternating to them). The philosophy now is to find a herbal drug that can go side by side with the conventional medicine and make available effective, safe and affordable drugs.

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A traditional medicine system of the Kui community in northeast Thailand

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Abstract

To define three different types of Kui traditional healers, herbalists, blowing doctors and spirit healers, according to their range and methods of treatment.

Surveys were conducted to identify traditional healers among a population of Kui villages in the southern part of Northeast Thailand. Criteria were established to select a sample group of thirty healers, ten of each type of healer. For over a six month period, free-lists and patient logs were conducted with the sample group to determine the range of health conditions treated by each healer and their method of treatment. Comparisons were made to analyze the similarity of knowledge among the same type of healers and between the different types of healers.

A high rate of similarity was determined among same-type healers. Each type of healer treated specific groups of health conditions. In general, herbalists rely mostly on medicinal plants to treat both chronic and acute afflictions, blowing doctors treat mostly acute health conditions with a blowing technique and incantation, and spirit healers rely on ceremonies to treat diseases that are long term and have a spiritual origin.

A system of traditional medicine has been established within Kui communities. To meet the healthcare needs of local people, different types of traditional healers have developed over many generations to provide specialized forms of treatment for specific health conditions.

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Developed by the representatives of African herbal clinic

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Abstract

Tradition Medicines as the name implies have been a cultural age long healing remedy practiced over the year and improved by casual and unformulated experiments, or in some case are totally forgotten with the passing away of the partition in cases where record have not been kept especially skin and bone related cancers with the use of traditional herbal formula and cultural approaches that need be improved and its efficiency scientifically test and infiltrated into current material medica.

Also to be present with precision are detailed current effective herbal traditional medicines developed by the African Universal herbal clinic based in the Gambia and Ghana for the treatment of ulcer, Epilepsy Arthritis, headaches and stress related ailments. Our latest discovery of a liquid extracts from an African plant for Quick and miraculous cure of wound sores and boils.

Research data and information plus treatment formulaic have been prepared to be presented and formulaic tested.

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Standardization of herbal medicine: A dire need today

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Abstract

In spite of recent developments of antibiotics and newer synthetic drugs, a vast majority of people depend on traditional medicines for their primary health care needs and it can safely presumed that a major part of traditional therapy involves the use of plant extracts or their active principle. In the recent years with ever growing commercialization in the field of herbal medicines, there has been an instant demand for quality control of the drugs used in this system. The studies on the identity, purity and quality of the genuine drug will enhance information in checking the adulteration. A set of standards would not doubt be deterrent on substitution and adulteration and also an aid for 'Drug law Enforcement'.

This study deals with examination of a herbal medicine starting from its cultivation, morpho-anatomical, pharmacognostic, physicochemical and analytical protocols, foreign organic matter, pesticide residue, radioactive and microbial contamination, chemical assay. Finger printing of the successive extractives using IR, UV, TLC & HPLC techniques, phytochemical screening, quantitative analysis of inorganic constituents.

A standardised outline is formulated starting from birth of the plants up to dispensing it to the patients either in crude form or in the form of a finished herbal products.

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Traditional medicine with its therapeutical and herbal resources in Iran

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Abstract

Traditional medicine with its therapeutical materia medica goes back many centuries to before Avicenna, Razi... Our studies are based: on our observations, particularly in rural families; on our practical experience in pharmacies during summer holidays in Tehran; and on lectures and study of handwritten manuscripts (in Persian, Arabic, French ...) such as Canon of Avicenna, Tohfe Hakim Momen or other lectures during our teaching at the Universities.

In this paper we discuss the basis of traditional medicine and the treatment by different parts of plants (roots, stems, flower, grains...). Traditional medicine and its therapeutical methods have been used by therapists such as renowned Hakim or Hakim Bashi, and Sheikh Attar (herbalist) experts in medicine and also in education, philosophy and morality. Until recently materia medica were often prepared during long winter nights.

Cupping glass, scarification and leeches were used in therapy. To reduce fever, the willow tree, the bark of poppy and marsh mallow were used. Belladonna, morphine or opium (theriac) were used to relieve pain. Caster oil, known for its laxative action, is used for children and also adults. Finally, childbirth was carried out by midwives, known as 'ghabele' until recently in villages. We also noted that mental illness, psychosis, dementia, behavioral disorders were long thought to be caused by supernatural forces or demonic possession. So, in several rural communities mentally ill people were given religious help in parallel with materia medica therapy. Hydrotherapy, thermo minerals.... have always been used for patients throughout history.

In conclusion we do not deny that in spite of advances in medical sciences and pharmacology... Traditional medicine and therapeutical plants continue to exist in many countries. Medicinal plants, used in Medicine for about 3000 years B.C., have become popular today around the world.

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Towards safe and effective phytomedicines: the need for standardization

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Abstract

Over the past 20 years herbal medicinal products have become a topic of increasing global importance, with both medical and economic implications. In developing countries in Africa and Asia, botanicals have always played a central role in healthcare. Data from WHO suggest that 65 to 80% of the populations in these countries depend on traditional and botanical medicines as the primary source of healthcare. This herbal renaissance has been fueled by strong consumer interest in natural therapies. However, the current lack of uniform quality in botanical products undermines consumer confidence.

If phytopharmaceuticals are to be regarded as rational drugs, they need to be standardized and pharmaceutical quality has to be approved. Medicinal and aromatic plants have to meet the standards set for their evaluation. The best approach that can be proposed for determining the quality of a phytomedicine is the level of active components or key bioactivity markers. Regardless of the form of the botanical, it should be analyzed to ensure that it contains these components at an acceptable standardized level.

There is a growing awareness and acceptance by the pharmaceutical industry as well as by the dietary supplements industry of the absolute need for standardization of botanical extracts and natural products to ensure batch-to-batch consistency.

A major challenge to the industry is the harmonization of standards and methods of standardization of the same product to ensure consistent quality, not only batch-to-batch within a given company, but industry-wide. The methods adopted should take into consideration the need for quality control monitoring over the entire process, from field collection, the selection of the germplasm and cultivation to post harvest processing and manufacture of the final botanical product. The lecture will shed light upon the criteria of quality assurance and quality control of phytomedicines.

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Phytochemical investigation of abietanoid quinones: extraction, structure elucidation, toward synthesis in the laboratory

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Abstract

The roots of Chinese sage, *Salvia miltiorrhiza* Bunge (labiateae) are used to prepare an important traditional medicine in the Chinese pharmacopoeia, Dan Shen. Indeed, related members of this genus are common traditional medicines throughout the world, making *Salvia* species the targets of intense phytochemical investigations. The active constituents of these species have been reported to be several abietanoids diterpenes bearing o-quinone or p-quinones. In this report we will present results of our investigation of *Salvia* species along with the synthesis of some active structures.

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Traditional system of medicine in Pakistan

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Abstract

In Pakistan traditional medicines has been a strong part of our cultural heritage and has played a significant role in providing health care to a large portion of the population especially Tibb-e-unani and Homoeopathy. Efforts are made for the development of comprehensive policy and strategies for utilization of traditional medicine in the mainframe health care system which includes education, selection of essential medicine, extent of regulatory measures, criteria for Quality Control and Quality Assurance, Measures to Integrate Traditional Medicine into the main stream of the Health Care System, cultivation, Preservation and sustainable use of commonly used herbs at Primary Health Care Level, Research and Development, Intellectual property rights and protection of indigenous knowledge. Recently Prime Minister has approved the Draft Bill to regulate the manufacture, sale, storage, import and export of these medicines. Their current official status e.g. acceptability, recognition etc in the country, various aspects of the suggestive policy and its strategies for implementation and salient features of the regulatory measures proposed are described and discussed. The main purpose of this presentation is to share our experience to seek your feedback and valuable inputs to develop our objectives in accordance with the international standards.

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Razi a famous Iranian scientist

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Abstract

Among the brilliant contributors to the sciences of medicine, pharmacy, and chemistry during the Iranian era was one genius who seems to stand for his time- the Persian, Razi, (about 865-925 AD), called Rhazes by the western world.

The most important authorship of Razi is the "contines" (Alhavi) that in fact, it is a medical encyclopedia and there is the description of all the illnesses, the way of cure and the ideas of pioneer from Hormos mesri (Egypt) to the contemporary one was "Abubakr Raqqi".

One of the features of Razi is that at first, he declared the previous scientist's ideas and after in necessities, he accepted some ideas or he refused some ideas. At last he declared his idea.

By reading carefully, 23 volume "contines" including of the name of 102 physicians and 282 books that Razi read and used, have extracted.

The name of 20 physicians and 42 books didn't declare in any of history of medical books such as "History of science by George Sarton", "Fehrest Ibn- Nadim" "Oyun-Al-Anba by IBN-AB-Osaybia"...And "Tarikh- alhokama Qefi". Some of the unknown physicians were Iranian and living in Sasanian's era and before Islam's time. In 26th international congress declared one of unknown physicians was Iranian scientist's medical ideas and discoveries.

In this congress at first, I have a superficial look at the name of the some famous physicians by historical background and their authorships which used by Razi, after that unknown physicians and also the books that their author isn't distinctive. I will describe the number of volumes and pages from the Razi's book "contines" that involved paragraph that have with these scientists.

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Evaluation of the efficacy of several phytopolymers in terms of their duration of mucoadhesion

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Abstract

In recent years worldwide interest has grown towards the development of mucoadhesive drug delivery systems. These systems are capable of adhering to body's mucosal surfaces for an extended period of time, releasing their drug content in a retarded manner. The use of biopolymers, and in particular phytopolymers, could provide a natural basis for the development of such systems. The aim of this study was to evaluate the rank order of adhesion of several phytopolymers in terms of their invitro duration of mucoadhesion.

Several phytopolymers including carrageenan, sodium alginate, tragacanth, locust bean gum, pectin, acacia and guar gum were directly compressed into 100mg flat-faced solid discs with a diameter of 9mm. The duration of mucoadhesion (maximum time interval disc remained in contact with the mucosal surface) of prepared discs to rat intestinal mucosa (model biological membrane), present within a pH 6.8 phosphate buffer at 37 C and under a constant tensile force of 15g, was evaluated. Each study was performed six times and the mean±standard deviation was calculated.

Among the polymers investigated, carrageenan (4.6±0.8 h) and guar gum (4.1±0.5 h) containing discs resulted in the longest duration of mucoadhesion, which were significantly (P<0.05, ANOVA) greater than tragacanth (2.6±0.4 h), sodium alginate (1.8±0.3 h), acacia (0.9±0.3 h) and pectin. Locust bean gum remained mucoadhesive for a period of 3.9±0.7 h. The least duration of mucoadhesion was observed with pectin (0.3±0.1 h).

Among the phytopolymers investigated, carrageenan, guar gum and to a lesser extent locust bean gum, appear to be reasonable mucoadhesives. However, because of the relatively high hydrophilic nature of these polymers, it is predicted that their use alongside synthetic polymers (such as Carbopols) could provide a competent, compliant and desirable matrix for mucoadhesive drug delivery.

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Enhancement of percutaneous absorption of curcumin (turmeric pigment) by ethanol

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Abstract

Curcumin is the active component of *Curcuma* species including *C. longa* (turmeric). This molecule is well known for its anti-inflammatory effect, which seems to be stronger than that of hydrocortisone. *Curcuma* species have been used in Asian traditional medicine as topical anti-inflammatory drugs. Curcumin has poor oral bioavailability and its topical application could be of choice, particularly for local effects. However, its percutaneous absorption and enhancement, that are the subject of the present investigation, are not well studied yet.

Permeation of curcumin through excised rat skin was studied at 25°C using static diffusion cells. As curcumin is not soluble in water, an aqueous solution of Tween 20 was used as the receptor phase. Dried curcumin (deposited on skin after solvent evaporation), and 50%, 75% and 96% aqueous solutions of ethanol (all containing 0.1% curcumin) were used as donor phases. Drug determination was by spectrophotometry at 424 nm. Data are presented as Mean±SD.

Results showed that permeation flux of curcumin from dried system, which is at its highest thermodynamic activity, was 0.43 ± 0.25 mg cm⁻² h⁻¹. In ethanolic systems, fluxes were higher than that of dried system and concentration-dependent. The flux was measured to be 0.75 ± 0.07 mg cm⁻² h⁻¹ and 1.09 ± 0.56 mg cm⁻² h⁻¹ in 50% and 75% systems respectively. When the concentration of ethanol was increased to 96%, the flux was increased to 2.3 ± 0.79 mg cm⁻² h⁻¹, which is by about 6 times more than that of the dried system. This could be mainly due to the effects of ethanol and/or water on the lamellar liquid crystalline structure of the skin.

These results show that ethanol and possibly other classes of enhancers can significantly increase permeation of curcumin. Further investigations including the effects of other classes of enhancers and vehicles on percutaneous absorption of curcumin and *Curcuma* extract are in progress in our laboratories.

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Tracks of ancient cosmetics in the modern era of cosmetics

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Abstract

Cosmetics is as old as the history of human being. It has been present in human life since the times of the most ancient civilizations.

Perfumery is one of the oldest branches of cosmetics. Valerian perfumes found from the Pharaohs' pyramids, had maintained their aroma. Coriander, Mace oil, cardamom, cinnamon, and juniper were also the favorite materials used for perfumery in ancient Egyptian civilization. Perfumes were very popular in ancient Persian civilization (from more than 2500 years ago). Some animal-origin perfumes such as amber and musk, and also perfumes made from flowers such as rose, jasmine, and narcissus were favorites of those people. Various flower perfumes were among their exported materials in that era. Perfumes were also very popular in other ancient civilizations such as the ancient Greek, Rome, and Indian civilizations. From 1900 onwards, analysis of the natural perfumes found the fragrant components, and some synthetic fragrances were discovered and used in perfumery industry. At present, many old fragrances are still used at least as imitation synthetic fragrances.

Even fighting the face wrinkles dates back to the ancient times. In ancient Egypt, there was a facemask made from Nile-mud and Alum, which was used for diminishing the wrinkles. A combination of wax, olive oil, and fresh milk was also used against wrinkles. Ancient Greeks used an ointment made of bread, milk, baked beans, and butter for diminishing the wrinkles. Today, discovering the mechanisms involved in skin aging has helped making modern anti-wrinkle products (some with herbal extracts) with a deep and real effect in fighting wrinkles.

Today's modernized cosmetics is the natural progression of the ancient cosmetics throughout the years. It has made innovations by introducing new active materials, as well as novel cosmetic delivery systems (e.g. liposomal forms) for the new and traditional raw materials.

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Ferula gumosa: Study on the phytochemical variability and the occurrence of adulterations

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Abstract

The resin of *Ferula gumosa* (galbanum) has been used in Persia for thousands of years. The habitats of this exceptional and endemic Iranian species is closely correlated to the parameters of rainfall and, mostly, to the usual winter fog. Within the last decades, the scarcity of the raw material was the reason for a dramatic increase in adulterations. Currently, more than five times the amount actually harvested in Iran is offered on the European market through different trading pathways! One consequence of this lamentable fact is the exchange of real galbanum against synthetical replacements to ensure reproducibility of the product characteristics. The international networks consciously causing the adulterations have been identified. There was even an intentional adulteration of numerous medicinal plant raw materials, deliberately risking serious consequences for the health of the consumers. Our research projects were aimed on a clarification of the situation for galbanum in Iran. With Khorassan, Elburz and Zagros, three big geographical areas were identified and distinguished according to their geology and climatic conditions. Within these three zones, Georges Betti took samples of botanically strictly identified populations of *Ferula gumosa*. Numerous of the collected samples of *Ferula gumosa* were analyzed by the CNRS (Centre National de Recherche Scientifique). In addition samples of some typical adulterants were taken and used as references for the identification of typical markers in commercial galbanum. The corresponding analyses are presented in detail within the posters of our working group. Besides an evident variability within the species, the analyses allowed us to identify some middlemen continuing to adulterate galbanum, with severe consequences for the Iranian regions economically depending on galbanum trading.

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Evidence-based bioactive phytoconstituents for human health and disease prevention

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Abstract

The term “medicinal” as applied to a plant indicates that it contains a substance or substances which modulate beneficially the physiology of sick mammals. Thousands of species of higher plants have been used by man for that purpose. Modern techniques have revealed the enormous variety and complexity of so-called secondary plant chemicals, i.e., those which do not occur in all species, but which are restricted in distribution to certain plant groups. Thousands of new structures have been isolated, most beyond the imagination of the most inventive chemist. Advances in evaluating biological activities enabled to explain the rationale of using many plants in traditional systems of medicine. Nowadays, many evidence-based bioactive phytochemicals are ingredients of many pharmaceutical preparations intended for curing a wide range of diseases. Examples of plant-derived drugs with evidenced biological activities will be presented. In addition, the lecture sheds light upon the significance of phytochemicals in disease prevention and their value as “Nutraceuticals” or “Functional Foods”.

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International record of healings of chronic illnesses through the conscious absorption of the life force according to the knowledge passed down by Bruno Gröning (1906-1959)

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Abstract

Ancient cultures and physicians in past centuries spoke about the existence of a higher power named "life force". The inquiries about the possibilities and effective limits of this power touches more and more people today, even medical circles. Bruno Gröning (1906-1959) one of the best known healers in Europe, had a deep intuitive understanding and knowledge of this power. He pointed out the forgotten origin and laws of the "life force" and how to use it for personal health.

Physicians of the Medical-Scientific Group, an international medical association, record and document the healings which happen in this way. If possible, they are documented through medical examinations performed by independent physicians. The reports are scrutinized internationally in physicians' work groups.

The systematic check of medically inexplicable healings of chronic diseases amazingly confirms Gröning's knowledge that he passed on. Through a certain physical and emotional attitude, reactions that initiate the healing occur often in the exact anatomical area of the illness. Usually the persons describe a very comfortable flow of energy and warmth throughout their body. Often they experience an increase of the symptoms of the disease or reactions like vomiting diarrhea, fever, and headache occur. Medical follow up examinations confirm the regression of even chronic diseases.

We have found spontaneous healings as well as healing processes lasting periods of several weeks or months. We have observed that it is not the type of illness, but rather the inner attitude of the person seeking help that is of special importance for the healing process. Certain documentation also shows the importance of the personal surroundings of the person seeking help. Healing through the absorption of the life force according to the knowledge of Bruno Gröning, also described as spiritual healing, is certainly a serious possibility for people seeking good health.

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Treatment of severe pain in cancer patients by Carcinosinum30C, a homeopathic approach, seven case reports

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Abstract

Neuropathic pain and its effective management remains a challenging clinical problem in palliative care of cancer patients. In this study Carcinosinum30c (a homeopathic remedy) is used for relief of severe pain in cancer patients, who were a candidate for nerve block procedure (CEPCA).

In this case study to seven cancer patients who were referred to pain clinic for nerve block procedure, after patient consent, one granule of carcinosinum30c (30c = 10-60 diluted with succession) was administrated sublingually. The efficacy of the remedy was evaluated qualitative and by pain scores. If the pain ceases completely after carcinosinum30c (pain score <3), it means a positive effect.

Case 1: A 38-year woman with metastatic mesothelioma

Case 2: A 18-year man with sever abdomen and extremities pain due adenocarcinoma of colon with metastasis to many organs.

Case 3: A 28-year woman with metastatic breast cancer and sever pain not responding to 10 mg morphine IV each two hours.

Case 4: A 85-year man with metastatic adenocarcinoma of prostate.

Case 5: A 58-year man with metastatic adenocarcinoma of prostate.

Case 6: A 58-year woman with metastatic adenocarcinoma of ovary and uterus.

Case 7: A 27-year man with metastatic adenocarcinoma of colorectal

Five patients in these case reports experienced clinically significant pain relief, no need for nerve block procedure and no need for analgesics with no detectable adverse events with Carcinosinum30c.

In two patients the analgesic dosage was significantly reduced.

It seems carcinosinum 30c is an effective palliative homeopathic remedy in pain relief of severe pain in cancer patients.

For establishing an exact protocol about when and how frequent, as solution or sublingually, in all or special groups of patients and etc., well-designed studies (e.g. controlled clinical trials, randomizing the patients, evaluating pain scores before and after remedy intake, etc.) are needed to support the findings obtained in these case reports.

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Unani concept & treatment of benign prostate hypertrophy (a comparative study)

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Abstract

Benign Prostate Hypertrophy is a disease of elderly males. Modern pathy has described many causes and treatment of the disease. Unani pathy too has description of disease and the treatment in its resource books. The description is in different ways. At some places, it has been described in symptomatic form while at other places it has been considered as a disease. The disease has different names in Unani literature like Waram-e-unq-e-masana (swelling of the neck of urinary bladder), Insidad-e-mujra-e-masana (obstruction of the outlet of the urinary bladder) or Symptomatic description. Many causes too has been described regarding the disease. Now it Is confirmed that the disease is because of the hypertrophy of prostate gland. Though the name of the gland is not there, I have enough avidence that the same concept is available in Unani lierature also, As for as the treatment is concerned, there are many single and compoud drugs which are effective in the treatment of the disease. Surgery is the best option among the modern paths for the treatment of the disease. Nevertheless, this is also true that Most of the BPH cases are not the clean cases. Most of them suffer with debilitating disorders; have cardiothoracic complications, lung infections and other problems. It may be risky to operate them. The Best option is there. That is the treatment on Unani pathy guidelines.

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The position of homeopathy in the world

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Abstract

Although homeopathy have been discovered 230 years ago by Dr Samuel Hahnemann but only scientific view has begun only since 25 years.

Currently homeopathy has been integrated into the national health care systems of many countries, including India, Mexico, Pakistan, Sri Lanka, and the United Kingdom.

In the World Health Organization report about alternative medicine that published in 2001, we noticed that homeopathy is regulated in 43 countries (Asia 7, Africa 7, America 9, Australia 2 and Europe 20).

Contrary to some critics who think that people try homeopathy only because they are uneducated, research published in the Western Journal of Medicine showed that homeopathic patients tend to be considered even better educated than the average American.

The New York Times noted that visits to homeopathic physicians are increasing in England at a rate of 39% per year. In two different studies published by The British Medical Journal and the Times of London revealed that 42% and 48% of the physicians surveyed refer patients to homeopathic physicians.

A recent survey of French doctors revealed that approximately 11000 utilize homeopathic medicines, approximately 25% of the French public have tried or are presently using homeopathic medicines, and over 20000 French pharmacies now sell homeopathic medicines. This survey also noted that courses in homeopathy leading to a degree are offered in six medical schools.

Homeopathy is widespread in Europe, but it is even more popular in Asia, especially India (Presently, there are over 120 four- or five-year homeopathic medical schools in India.), Pakistan, Sri Lanka and Emirate, Malaysia, Iran (we have 130 member of Iranian Homeopathic Association member who all of them are physician).

As an article in the World Health Organization's journal World Health Forum noted, "Homeopathic treatment seems well suited for use in rural areas where the infrastructure, equipment, and drugs needed for conventional medicine cannot be provided.

Homeopathy is re-experiencing a renaissance in the United States as well. In the mid-1980s, it can be estimated that there are approximately 1,000 physicians who specialize in homeopathy. According to the Washington Post, the numbers of physicians in the U.S. who specialize in

homeopathy doubled from 1980 to 1982. Approximately 1,000 other health professionals in the U.S. use homeopathic medicines.

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Herbal medication and venesection in the treatment of sciatalgia in Islamic medicine

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Abstract

This paper is based upon a ten year study on the combination of venesection (fasd), blood letting (hejamat) and herbal therapy in the treatment of sciatalgia as based on the sayings of the Holy Prophet of Islam and his family. In this paper we present venesection and blood letting as two major methods of treating sciatalgia in parallel with herbal therapy and we demonstrate the efficiency of this therapy on sciatalgia.

This is a subjective retrospective review. Initially 1000 patients were randomly selected from a pool of 25,000 patients received at the Islamic medicine Center over the last ten years. Of this group of 1000, 100 had sciatalgia. The group of 100 patients with sciatalgia was studied for the cure rate offered by the methods of Islamic Medicine namely venesection and blood letting in conjunction with selective herbal therapy. In the full text we extrapolate on the exact herbs, the site of venesection and the types of blood letting used.

Sciatalgia had a predominance of 10% at the Islamic Medicine Center. Of the 100 cases of sciatalgia, the cure rate was 96%.

The therapeutic techniques taught to us by the Holy Prophet and his family is a valuable guide for healing the ill as they have a heavenly source. This study demonstrates the high efficacy of Islamic Medical therapy on sciatalgia that consists of proper herbal therapy, blood letting and venesection. These methods are inexpensive and afford avoidance of the difficulties of physiotherapy and/or surgery.

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Effect of gossypin on formalin-induced nociceptin in mice

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Abstract

Gossypin is a bioflavonoid isolated from *Hibiscus Vitifolus* Linn. The antinociception activity of gossypin has been studied in comparison with the standard antinociception agent, morphine, against the experimental model of tonic continuous pain produced by formalin. Formalin (0.1ml of 1% solution) was injected under the plantar surface of right hind paw of mice and the time an animal spent in liking the injected paw was measured. Gossypin was administered before the induction of pain by formalin and its effect was measured compare with morphine. The data were analysed. Gossypin has been found to be effective against pain induced by formalin in a dose dependent manner.

The antinociception activity of gossypin has been studied in comparison with the standard antinociception agent, morphine, against the experimental model of tonic continuous pain produced by formalin. Formalin (0.1 ml of 1% solution) was injected under the plantar surface of right hind paw of mice and the time an animal spent in liking the injected paw was measured. Gossypin was administered before the induction of pain by formalin and its effect was measured compare with morphine.

Gossypin extracted from *Hibiscus Vitifolus* Linn plant has got naalgesic effect compared to morphine.

It is recommended to survey the antiinflammatory effects of gossypin and *Hibiscus Vitifolus* Linn extract to find the relationship between the good analgesic effect and likely antiinflammatory effect.

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Silymarin flavonoids and cyclosporin A: Effective co-therapy?

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Abstract

Milk thistle (*Silybum marianum*) is a native plant of Mediterranean Sea areas. Silymarin, an extract from its seeds, is used in various liver diseases for its hepatoprotective effects. It contains silymarin flavonoids (SF) such as silybin, silydianin and silychristin. Cyclosporin A (CsA) is widely used as an immunosuppressant in organ transplantations. Its other applications in many autoimmune diseases were demonstrated. Unfortunately CsA has obligatory negative effects: hepatotoxicity and nephrotoxicity. P-glycoprotein (Pgp) is the main target of CsA in plasma membrane and high affinity of CsA to this membrane transporter is connected with CsA toxicity. The aim of this study was to confirm the hypothesis, that SF compete with CsA for binding sites of membrane proteins in vitro and could protect liver cells against the entry of CsA toxic concentration.

Rat hepatocytes were isolated by collagenase perfusion. They were incubated with silybin, silydianin, silychristin and CsA and 3H-labeled CsA was always added. The amounts of ligands bound in hepatocytes were estimated after vacuum filtration of cell suspension with help of radioligand depletion by using the scintillation method. Software GraphPad Prism4 was used for interpretation and statistic evaluation of data.

All tested SF depleted 3H-CsA from its bound in hepatocytes. The mechanism of interaction between SF and CsA was evidently competitive. The highest affinity for the target protein has silychristin, IC₅₀ being 0.14 μM (95% confidence interval for log (IC₅₀) [M] -7.03 to -6.69). IC₅₀ for silybin and silydianin were estimated: 0.22 and 0.23 μM, resp. (95% confidence intervals for log (IC₅₀) [M] -6.91 to -6.42 and -6.93 to -6.33 resp.).

The existence of competitive interaction between SF and CsA in hepatocyte membrane was confirmed and with high probability it is connected with one receptor, Pgp. It is possible to say, that the SF-protection of liver cells by patients with CsA-therapy could be effective.

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Melatonin: A therapeutic potential for the neurohormone in gallbladder disorders

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Abstract

In humans, N-acetyl-5-methoxytryptamine (melatonin), a neurohormone widely found in plants and animal sources, is synthesized from serotonin primarily by the pineal gland. However, it is also produced in a number of other areas, e.g. the gastrointestinal tract. Melatonin regulates various biological and physiologic body functions and its role in the regulation of circadian rhythms, particularly, the sleep/wake cycle, is well established. Its application has brought improvements in sleep disturbances, insomnia and mental diseases e.g. depression. Furthermore, the antioxidant role of melatonin may be of potential use for conditions in which oxidative stress is involved in the pathophysiologic processes. Recent studies also showed that melatonin modifies immunity, stress response and certain aging processes. Additionally, it inhibits cancer cell growth in vitro and in vivo, and melatonin application has favourable effects in cancer patients. We studied the effects of melatonin in human gallbladder, as human bile and, particularly gallbladder bile, contains high physiological levels of melatonin. First, we investigated whether the melatonin receptor MT1 is present in gallbladder tissue. Expression and localization of MT1 was assessed by RT-PCR, Western blotting and immunofluorescence analysis in samples from patients with cholelithiasis and advanced gallbladder carcinoma. Additionally, we monitored mRNA expression of the two key enzymes of melatonin synthesis, i.e., arylalkylamine-N-acetyltransferase and hydroxyindole-O-methyltransferase. MT1 mRNA and protein were present in all ten cholelithiasis and five gallbladder carcinoma samples. As indicated from RT-PCR and Western blot studies, MT1 is located in gallbladder epithelium. Epithelial expression was further proven by immunofluorescence staining of MT1 in paraffin-embedded cholelithiasis and gallbladder carcinoma sections. Our results provide the first evidence for the presence of a receptor for melatonin in human gallbladder epithelia. Therefore, in addition to its profound antioxidative effects in the biliary system, melatonin might also act through MT1-mediated signal transduction pathways to regulate gallbladder function. Whether melatonin may have the potential to be useful in a clinical application for the improvement of gallbladder function in cholelithiasis patients will have to be established.

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Role of ethnopharmacology in the development of modern medicine

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Abstract

According to WHO, about three-quarters of the world population rely upon traditional medicine (TM) mainly herbs for the healthcare. Apparently all primitive peoples used herbs-often in a sophisticated way. By the middle of the 19th century at least 80% of all medicines were derived from herbs. Then came the revolution inspired by the development of the pharmaceutical industry and synthetic drugs dominated, though herbal medicine has never been out of scene. Even today if you walk into any pharmacy in the West, you will find at least 25% plant-derived drugs. Morphine, digoxin, quinine, quinidine, atropine, physostigmine, pilocarpine, vincristine, vinblastine, taxol and artimesinin are a few examples of what traditional medicine has given us in the past. Most of these plant-derived drugs were originally discovered through the study of traditional cures and folk knowledge of indigenous people. There is a revival of interest in TM, the revival which has been so dramatic that the current global herbal industry is over US \$ 100 Billions a year. Ispaghul, Garlic, Ginkgo, Ginseng, St. John's Wort and Saw palmetto are a few examples of botanicals which are gaining popularity amongst the physicians of modern medicine and known to contain interesting combination of pharmacological activities. TM is now increasingly becoming essential part of the medical curriculum. Interestingly, citations of studies on TM and the impact factor of the respective journals are growing with rapid pace. Thus there is a huge potential of medicinal plants in healthcare of not only in developing countries but also in the industrialized world and the acceptance of botanicals in modern medicine is likely to be increased in the years to come. A team work amongst the ethnobotanists, ethnopharmacologists and the phytochemists is essential for the meaningful out come.

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Tuberculosis & traditional medicine: fighting the oldest infectious disease, using the oldest source of medicine

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Abstract

It is believed that tuberculosis has been killing human beings for over 4000 years. Several reports exist of ancient Egyptian mummies having signs of tubercular decay in their bodies. After the discovery of powerful anti-TB drugs such as streptomycin, isoniazid and rifampin during 1940-70s, it was thought that TB would be gone from the face of the earth, but tuberculosis still remains one of the biggest killer of human beings throughout the world. In fact the fall in human TB deaths that started in 1940s, leveled off in the late 1980s due to the emergence of AIDS and multi-drug-resistant TB. This resurgence of the disease calls for the discovery of new drugs and remedies.

From the historical point of view, medicinal plants had been the oldest source of medicines. Some of the most effective drugs such as digoxin and morphine have their roots in the nature and traditional medicine continues to play an important role in health services.

Due to its ecological diversity, Iran has distinctive medicinal plants growing in different parts of the country. On the other hand there are hundreds of documented native medicinal plants utilized by traditional practitioners who had lived in Iran in centuries ago and their records could be used as a priceless source of information.

In Traditional Medicine & Materia Medica Research Center (TMRC), we have launched a nationwide screening program in collaboration with National Research Institute of Tuberculosis & Lung Diseases (NRITLD) for the identification of novel anti-TB agents in medicinal plants. We consider this program as a battlefield for traditional medicine against tuberculosis.

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Phytochemical and biological studies on *Goniothalamus* spp. in Borneo

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Abstract

Goniothalamus spp. are widely distributed in the island of Borneo. About 40 species of *Goniothalamus* have been recorded in Borneo. *Goniothalamus* spp. are widely used in traditional medicinal practices in Borneo especially in treating diarrhea, fever, skin diseases, antidotes and most commonly used as postparturition aids and as abortifacient. Some of the species are also being used as natural insecticide. Several *Goniothalamus* spp. commonly found in Borneo especially the endemic species have been studied in order to isolate biologically active compounds. The studies involved solvent extraction and partition; isolation and purification by various chromatographic methods; structural elucidation by various spectroscopic methods and biological assay using established protocols. Some of the species studied includes *Goniothalamus andersonii*, *G. borneensis*, *G. clemensii*, *G. dolichocarpus*, *G. fasciculantus*, *G. gigantifolius*, *G. longistipites*, *G. macrophyllus*, *G. roseus*, *G. stenopetalus* and *G. velutinus*. Phytochemical studies on these species resulted in the isolation of various styryl-lactones and alkaloids. Cytotoxic styryl-lactones and their derivatives that have been isolated in almost all *Goniothalamus* spp. studied are characteristic compounds of this useful genus. Some of the more important styryl-lactones derivatives isolated includes goniothalamine, 5-acetoxystyryl-goniothalamine, goniodiol, 5-hydroxystyryl-goniothalamine, dehydrogoniothalamine, goniotriol, goniofufurones, goniofupyrone, goniothalenol, goniotharvensin and cardiobutanolide. Some of the species studied such as *G. borneensis*, *G. gigantifolius*, *G. macrophyllus*, *G. roseus* and *G. stenophyllus* gave various styryl-lactones and their derivatives while some others such as *G. clemensii*, *G. longistipites* and *G. stenopetalus* only gave goniothalamine, goniothalamine oxide and 5-acetoxystyryl-goniothalamine. All the isolated styryl-lactones and their derivatives showed interesting biological activity especially cytotoxicity on various human tumour cell lines. The distributions of alkaloids in this genus are rather limited and only isolated from several species studied. Alkaloids have been isolated from *G. borneensis*, *G. gigantifolius*, *G. stenophyllus* and *G. velutinus*. The alkaloids produced by many *Goniothalamus* species are notably aporphines and are biologically active. Some of the alkaloids isolated include goniothalactam, goniopedaline, aristolactam AII, aristolactam BII and velutinam. *G. velutinus* produced almost all the mentioned alkaloids Interestingly *G. velutinus* being used by some of the ethnics in Borneo in the treatment of tumour and all the mentioned alkaloids isolated from *G. velutinus* showed certain degree of cytotoxicity on various human cell lines.

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Medicinal and aromatic plants-new product development for poverty reduction

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Abstract

Traditional Medicine is very culture based. Every ethnic group has had its traditional medicine based on its indigenous knowledge base. Most traditional medicine systems utilize herbs (plants) as the main source of their therapeutic substances, although minerals and animal products are also utilized. traditional knowledge has often played a role in the development of modern science. Greater efforts are needed to integrate the insights of traditional knowledge into modern science, rGlobally, there is a revival of interest in the use of medicinal plant products for the treatment of various ailments. This is mainly due to increased awareness of the limited horizon of synthetic pharmaceutical products to control major diseases, high cost of currently available synthetic medicines, reported cases of adverse side-effects of modern medicines and perceived gentleness of natural medicines. There is therefore, a strong need to develop new products from medicinal plants. A number of products from medicinal plants have emerged successful in recent years to highlight the importance of medicinal plants to the development of modern medicine. About 80 percent of the people in the developing world rely on herbal remedies as a principal means of preventing and curing illnesses, and several traditional medical systems are based on the use of plants. The developing countries have also now opportunities to derive economic benefit by using their natural resources of medicinal plants. It is also very important that research and development efforts should be focused on the preparation of standardized plant products from herbal plants which can fulfill the needs of poor people in their health problems.

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Cytotoxic evaluation of iranian conifer extracts

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Abstract

Isolation and identification of some potent anti-tumor compounds from medicinal plants, has motivated researchers to screen different parts of plant species for anti-tumor effects. It has been reported that several conifer possess cytotoxic activities on some human tumor cell lines. In this study, male and female branchlets or fruit of four different species of Iranian conifers (*Juniperus Sabina*, *Taxus baccata*, *Cupressus horizontalis* and *Platycladus orientalis*) were collected from the northern parts of Iran and identified. Hydroalcoholic extract of these species was prepared by percolation. The cytotoxic effects of the extracts on three human tumor cell lines (Hela, KB and MDA-MB-468) were determined. Different concentrations of extracts were added to cultured cells and incubated for 72 h. Cell survival was evaluated using MTT-based cytotoxicity assay. Extracts from fruit, branchlets of male and female *J. sabina* showed inhibitory activities against Hela cells. The extracts of the fruit and branchlets of male and female *J. sabina* showed inhibitory activities against MDA-MB-468 cells. Extracts from bark of female *T. baccata* showed inhibitory activities against Hela cells. The extracts of the branchlets of male and female *T. baccata* and branchlets of *C. horizontalis* showed inhibitory activities against MDA-MB-468 cells, whereas the extracts of branchlets of female *T. baccata* showed inhibitory activities against KB cells. In conclusion, obtained extract from bark of Iranian *T. baccata* showed comparable cytotoxic effect to doxorubicin against Hela cells.

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HPLC-SPE-NMR: a productivity tool in natural products research

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Abstract

Natural products provide excellent potential leads for drug development because of their chemical diversity and biological functionality. However, the productivity of discovery of new, pharmacologically active natural products has traditionally been low due to inherent difficulties and costs associated with extract dereplication, i.e., isolation, purification and structure elucidation of individual components of plant metabolomes. Thus, traditional approaches (in which structural information is obtained at the end of a lengthy purification process) frequently result in re-isolation of known and trivial natural products. Hyphenation of separation methods with a powerful structure elucidation technique such as high-field NMR allows structural information about extract components to be obtained prior to preparative-scale purification, allowing the isolation efforts to be focused on desired extract constituents. However, traditional HPLC-NMR schemes suffer from sensitivity constraints and limitations related to solvents, since HPLC separations and NMR spectroscopy require different solvents for optimal performance. A novel solution to these problems is provided by HPLC-SPE-NMR, where the SPE interface allows sample concentration as well as solvent change. Examples of the use of HPLC-SPE-NMR as a method of rapid plant extract dereplication will be provided; together with a 600 MHz magnet, the method allows acquisition of high quality 2D NMR data including COSY, gHSQC and gHMBC experiments. Coupled with a mass spectrometer and automatic compound identification, the method constitutes an excellent productivity tool in natural products research and in NMR-based metabolomics.

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Effect of light and passage on cardiac glycoside production on cultured cell of *Digitalis nervosa* Steud & Hochst

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Abstract

Light is important for the production of metabolites by plant cell culture. It is therefore necessary to evaluate the light conditions with respect to exposure time. Both enhancement and inhibition have been observed depending on exposure time and species. Callus culture of *D. nervosa* was established and effect of light and passage on cardiac glycoside production was studied.

In vitro cultures were successfully established from seedling using MS medium supplemented with K (0.5 mg/l), 2, 4-D (0.5 mg/l), NAA (1 mg/l) as plant growth regulators. These were then left under a twelve hourly light/dark cycle or 24 dark condition. The phytochemical studies were carried out using Thin Layer Chromatography (TLC) and UV spectrometry.

Although we were able to establish the production of cardiac glycosides in *D. nervosa* cultures, the yield was very low, and moreover, during successive transfers of the cultured cells the amount of cardenolides decreased. Culture passage had a significant effect on the yield of cardenolide. The production of cardiac glycosides did not differ depending on the light exposure time during the in vitro culture. No significance differences in cardenolide production by *D. nervosa* cells kept in the dark compared to that cells exposed to intervals of light were observed.

It seems the effect of light and passage on cardiac glycoside production depend on plant species.

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Assessment of "drug-likeness" of a small library of natural products using chemoinformatics

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Abstract

Even though natural products has an excellent record as a source for new drugs, the advent of ultrahigh-throughput screening and large-scale combinatorial synthetic methods, has caused a decline in the use of natural products research in the pharmaceutical industry. This is due to the efficiency in generating and screening a high number of synthetic combinatorial compounds; whereas traditional natural products based research generate considerably fewer compounds. However, the accelerating throughput caused by these large-scale combinatorial technologies has not resulted in marketed drugs, whereas natural products based research continues to bring new chemical entities to the market. This emphasizes that nature's privileged structures have pre-programmed pharmacological activity that can be explored in drug discovery. In addition, not only the size of a chemical library, but also its molecular diversity, biological functionality and "drug-likeness" are important parameters. Natural products are therefore likely to play an important role in future drug discovery programmes, either in pure compound libraries or as scaffolds for combinatorial chemistry. Virtual screening can be used to assess chemical diversity of natural product libraries. As a demonstration of this, a small library of 9 aromadendrane-type sesquiterpenoids was described using this approach. This showed that the library are capable of interacting with the same macromolecular target site containing 4 interaction sites. However, the compounds within the library interacts differently with the interaction sites, which suggests that the compounds could interact with receptor variants or trigger different responses on the same putative receptor. In addition, the physicochemical properties of the compounds in the library vary considerably, which suggests a heterogeneity towards possible transport mechanisms in order to access the putative receptor. In conclusion, the heterogeneity in the biological functionality and the molecular diversity of the library shows that natural products indeed are privileged structures offering a pre-programmed range of interaction modes with macro-molecular targets.

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Phytochemical study of *Swertia longifolia* (Boiss.)

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Abstract

Plants of the genus *Swertia* (Gentianaceae) have been used in traditional medicine for many years. These herbs taste extremely bitter and have been mainly used for the treatment of hepatic, choleric and inflammatory diseases such as hepatitis, cholecystitis, pneumonia, osteomyelitis, dysentery, scabies, spasm, pain and neurasthenia.

In this genus, many components such as iridoids, xanthenes, flavonoids, polyphenolic compounds and so on have been isolated and their biological activities investigated. They were described as antidepressant, antipsychotic, antidiabetic and hepatoprotective. It is also reported that xanthenes and xanthone glycosides are most active compounds.

Because of these biological abilities and in our course to a better knowledge of endemic plants of Flora Iranica, *Swertia longifolia* (Boiss.) that grows in the northern parts of Iran was studied.

Dried and milled aerial parts of plant were continuously extracted in a soxhlet apparatus with petroleum ether (bp. 60-80) and then with ethanol. Ethanolic extract after concentration was poured into aqueous acetic acid 4% and filtered. The clarified acidic aqueous solution was subsequently extracted with chloroform, ethyl acetate and n-butanol. N-butanol extract was chromatographed over Sephadex LH-20 and eluted with methanol. The main fractions were chromatographed on Silica and then C18.

This process yielded 7 components. They were identified as 1 iridoid glycoside, 1 secoiridoid glycoside, 2 xanthenes and 2 xanthone glycosides by means of their UV, MS, 1H-NMR and 13C-NMR data.

Since there are xanthenes and xanthone glycosides in *Swertia longifolia*, it is expected that this plant has interesting pharmacological activities.

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Intersting SAR studies of pregnane alkaloids isolated from genus *Sarcococca* against cholinesterase enzymes

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Abstract

The genus *Sarcococca* is widely distributed in South-East Asia and it comprises 14 species. The genus is traditionally used for gastrointestinal ulcers, infections, pain and in rheumatic fevers. Recently, our group has derived a comprehensive SAR relationship picture for a new series of natural cholinesterase inhibitors isolated from *Sarcococca saligna* (syn. *S. pruniformis*, Buxaceae). The fractionation and purification of the active constituents is based on bioassay-guided screening by using cholinesterase enzyme inhibition assay. These new cholinesterase inhibitors may act as potential leads in the discovery of clinically useful inhibitors for nervous system disorders, particularly by reducing memory deficiency in Alzheimer disease patients by potentiating and affecting the cholinergic transmission process. The cholinesterase inhibitory potential, kinetics and docking studies of pure compounds were accomplished and will be discussed in detail.

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Strategy for research of new pharmacologically active molecules from plants for the treatment of pathologies

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Abstract

Herbal medicine, botanical medicine, phytotherapy, alternative medicine or, complimentary medicine are terms used to describe the science of using plant-based materials to treat specific symptoms or diseases. People have strong belief that natural remedies are perfectly safe. Because we have strong ties to traditional culture we use herbs and spices on daily basis.

Plants are an abundant natural source of natural compounds possessing new structures and interesting pharmacological properties. These plants or molecules of natural origin can give new drugs or can also be used as prototypes for the development of new medicines or as pharmacological tools in biochemical studies.

Recent OMS data indicated that more than 80% of the population of developing countries rely on medicinal plants for the treatment of their illnesses. Furthermore, only 10% of the 400,000-500,000 existing plants have been-to some extent- studied up to now. So the remaining work is enormous, as is the probability to find in these plants original structures with new modes of action.

This presentation will focus on the main strategies followed to find new pharmacologically active molecules from plants: selection, harvesting, testing, purification and structure determinations, analysis of the mode of action, studies of structure-activity relationships and preparation of derivatives. Examples will be given from the literature and personal results.

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The role of physician in ethnopharmacological investigations

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Abstract

The essence of ethnopharmacology is interdisciplinary research that usually involves traditional healers, botanists, chemists and pharmacologists. The role of researchers from pertaining disciplines is well defined in ethnopharmacological investigations. However, the exact role of a physician has not yet been distinctly clear in ethnopharmacological investigations. Historical data shows that discovery of several important herbal drugs owe to medical knowledge and expertise of physicians. This report will emphasize roles physician can play in ethnopharmacological studies. Physician can contribute in multiple areas involving ethnopharmacological studies. These include: (1) Interpretation of signs and symptoms from ancient texts and suggesting proper use of old traditional remedies in the light of modern medicine. (2) Ethnopharmacological field work, interviewing healers and interpreting the traditional terminologies, examining patients consuming herbal remedies and identifying the disease for which an herbal remedy is used. (3) Objective evaluation of effectiveness of herbal remedies by clinical studies. (4) Bridging the gap between different members (traditional healer, chemist, botanist and pharmacist) of the team carrying out ethnopharmacological investigations. Specialized physicians can further play important role in clinical evaluation of herbal remedies or drugs in human subjects. In conclusion, physicians can contribute significantly by their background knowledge of biological sciences, basic and clinical aspects of disease and pharmacology to enhance the quality of information gathered in ethnopharmacological studies and reduce the errors in interpretation of traditional knowledge and evaluation of herbal remedies.

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Development of anti-malaria herbal preparation / drugs from local medicinal plants

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Abstract

1. The screening for potential anti-malaria properties by bioassay guided fractionations. The biological properties were carried out using the plasmodium lactate dehydrogenase assay (pLDH) (Makler, 1993).

2. The harmful effect of the extract was determined by the MTT assay (Mossman, 1983).

3. The extracts were tested for its efficacy in animal model using rodent malaria parasite, *P. berghei* using the 4 Days Suppressive Test by Peters and Robinson, 1975.

4. The parasite and the host cell biology were investigated to determine the role of the drug on the biology of the host cells and the erythrocyte invasion pathways.

5. The probable mode of actions were also investigated through known mechanism of action such as the Heam Polymerization Assays (Basilico et al., 1997).

The biological screening was carried out using the pLDH assay, triplicate test were carried out at different time to ensure the reproducibility of the results. The data was analysed using probit analysis.

The *in vivo* assay was by 4 days suppressive test, For each parasite strain, 4 groups of mice with different doses given orally were used, each having 5 mice and another 4 groups of mice with the same doses given *s/c* and each group having as the earlier. The standard control used was chlorouine and the design was similar to the test group except that the oral and *s/c* doses were according to the standard dose from standard procedure by Peters and Robinson, 1975. Mode of actions, parasite erythrocyte invasion assay were according to known procedure.

30% of the local medicinal plants screened have potentials for anti-malarial. The herbal preparation of the *E.longifolia* standardized extracts were able to suppressed the infection of the rodent malaria more than 80%. Detail results will be discuss in the presentation.

E. longifolia herbal standardized extracts have potential for anti-malaria drug.

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Cryptolepine and development of new antimalarial agents

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Abstract

Natural product-derived drugs exemplified by quinine, isolated from South American *Cinchona* species and artemisinin discovered in China are of immense importance for the treatment of malaria. Although malaria parasites resistant to artemisinin have not yet been found in malaria patients, the need for new antimalarial agents remains. The burden of malaria is heaviest in Africa where over a million children die of the disease each year, but although many medicinal plants are used in African traditional medicines for the treatment of malaria, none has yet yielded an effective antimalarial compound.

Cryptolepis sanguinolenta (Periplocaceae), is a West African climbing shrub used traditionally for the treatment of malaria. Cryptolepine, an indoloquinoline alkaloid is the major constituent of the roots of *C. sanguinolenta* and has potent activity against malaria parasites in vitro, but it is cytotoxic on account of its abilities to inhibit topoisomerase II and to intercalate into DNA and it is also toxic to mice in vivo. However, the antimalarial mode of action of cryptolepine appears to involve a quinine-like mechanism (inhibition of β -haematin formation) that is independent of interactions with DNA. This opens up the possibility that it may be feasible to prepare analogues of cryptolepine that do not interact with DNA (and hence may be less cytotoxic) but that retain or have enhanced antiplasmodial activities.

Using various synthetic routes, a number of substituted cryptolepine analogues have been made and evaluated for their potential as leads to new antimalarial agents. Compounds were assessed for in-vitro activities against chloroquine-sensitive and chloroquine-resistant strains of *Plasmodium falciparum* and for cytotoxic activities. Some compounds have been assessed for their abilities to interact with DNA and a number of compounds has also been assessed for antimalarial activity against *P. berghei* in mice. Several cryptolepine analogues were found to have potent antiplasmodial activities ($IC_{50} < 0.1 \mu M$) against chloroquine-resistant *P. falciparum* (IC_{50} for chloroquine = $0.44 \mu M$), but they are generally of similar cytotoxicity to cryptolepine. However, while cryptolepine is toxic to mice, a number of analogues have been shown to have promising antimalarial activities in the mouse-malaria model with no apparent toxicity. In view of this, derivatives of cryptolepine appear to be worthy of further investigation as potential antimalarial agents.

In this lecture, the current status of antimalarial cryptolepine research will be reviewed and the potential of cryptolepine as a lead to new antimalarial agents will be discussed.

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Isoflavonoids isolated from *Smirnowia iranica* as new antiprotozoal agents

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Abstract

The Leguminosae (Fabaceae) is the second-largest family of flowering plants and contains 657 genera and about 16400 species. It includes more important drugs than any other family.

Apart from a report on description of the species in Iran, the literature lists only reports of photosynthesis and carbon dioxide exchange in the plant, and also three reports on isolation of alkaloids named smirnovinine (isospherophysine) and spherophysine published in 1947-1951 in the USSR. Structures of these “alkaloids” were either not reported or are questionable. Thus, the genus is extremely poorly investigated from the phytochemical point of view.

The isoflavans isolated from the *Smirnowia* species (two novel natural products, 8-prenylmucronulatol and smiranicin, as well as the known glyasperin H), inhibited significantly growth of extracellular stages of three *Leishmania* species in vitro. The activity against intracellular stages was lower. 8-Prenylmucronulatol showed moderate in vitro toxicity against *Plasmodium falciparum*, without noticeable erythrocyte membrane effects at the inhibitory concentration.

Because of the structural relationship of isoflavans with chalcones and aurones, some of which are potent antiprotozoal agents, the isoflavan skeleton may be a template structure in search for new compounds with leishmanicidal and antiplasmodial activity.

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Effects of Cryptolepine, 2, 7, dibromocryptolepine and standard drugs on hemoglobin accumulation in cultured Malaria parasites

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Abstract

Cryptolepine is the major alkaloidal constituent of the West African climbing shrub *Cryptolepis sanguinolenta*, a species used in traditional medicine for the treatment of malaria and a number of other infectious diseases. Cryptolepine and a number of its synthetic analogues have been shown to have potent antiplasmodial activities using *P. falciparum* lactate dehydrogenase assay (PfLDH).

Intraerythrocytic malaria parasites degrade host erythrocyte hemoglobin as a principal source of free amino acids for protein synthesis (Scheibel and Sherman, 1988). The accumulation of undigested hemoglobin in compounds and drug-treated infected cells in conjunction with inhibition of parasite growth has been studied in order to get a deeper insight into the mode of action of cryptolepine and its derivatives.

The observation that cryptolepine inhibits the formation of b-haematin suggests that the antiplasmodial activity of cryptolepine appears to be due, at least in part, to a chloroquine-like action (Wright et al., 2001).

Here it was found, using SDS-PAGE, that CQ could inhibit hemoglobin degradation, which is consistent with previous work (Orjih et al, 1994; Famin and Hagai 2002). We also showed that cryptolepine, 2, 7-dibromocryptolepine and amodiaquine (AQ), behave similarly. In contrast, quinine (Q) and mefloquine (MQ) did not affect this process.

These results suggest that the antimalarial mode of action of cryptolepine and most probably its derivatives may inhibit the hemoglobin degradation process as a part of their parasite killing mechanism.

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Requirement of a conservative cytotoxicity assay selection in cellular experiments

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Abstract

Assessment of the cellular effects of natural and/or synthetic products is one of the major goals in biological experiments. This assessment may be conducted at different levels; cellular viability, cellular biological activity, and cellular structure and morphology. Different assays are available for any of above purposes. It is becoming of a routine exercise to apply any of these assays, and report the cyto-effect of natural or synthetic agents using the standard protocols on any different cell lines. A comparison of the application of different cytotoxicity assays for natural and synthetic materials, on different cell lines and at different conditions is presented here to proof that a very wise selection of the assay, as well as the method optimization is necessary for different purposes.

IC₅₀ of the essential oil and extracts of four different plants, four different synthetic chemical products, three different therapeutic drugs, and one biological fungal agent have been evaluated on seven different tumor or normal cell lines. A variety of cytotoxicity assays including the clonogenic, cell detachment, Neutral-red (NR) and MTT assays have been used after the exposure of different cell lines to any of above samples in the same condition. In some cases, cellular glutathione and DNA fragmentation assays have also been carried out.

As is shown in our experiments, IC₅₀ of different natural and synthetic agents changes significantly from assay to assay, or using the same assay in different cell lines and conditions. The survival curves shape is also variable when evaluating of the same agent using different methods. As an example, while NR was not able to demonstrate the 50% killing for the essential oil of *M. pulegium* on any of A375 or ACHN cell lines, clonogenic assay has resulted in IC₅₀s of 9.1 and 46.9 ug/ml at the same condition, respectively. On A549 cell line, the application of same agent has resulted in the IC₅₀s of 28.1 and 18.7 ug/ml using either NR or clonogenic assay, respectively. As an example of a therapeutic drug, the IC₅₀ of cisplatin was found to be three times higher when measured using NR (3 ug/ml) compared to the clonogenic assay (1 ug/ml) after one hour exposure to the SKOV3 cell line, and up to 20 fold different in different cell lines. A delay of the couple of hours for the MTT measurement of cisplatin cytotoxicity on LLCPK cell line has also resulted in up to 10 times differences in the calculation of IC₅₀. We were not able to find any significant correlation between the amount of DNA fragmentation, total protein content and the GSH level with cytotoxicity in different cell lines for different agents. Detail of all results will be presented at the symposium.

IC50 has widely been accepted as a standard measurement when evaluating potentially natural or synthetic cytotoxic agents. Different methods of IC50 measurements are available. Although many investigators are relying on IC50 to conclude the relative cytotoxicity of different natural or synthetic agents, one should be warned that it is dramatically influenced by the assay protocol, as well as the biology of different cell lines. Presently, approval or rejection of different natural or synthetic products in the screening investigations is not well standardized. Selection of the cell line, the nature of cytotoxicity assay, exposure duration and condition, and the interpretation of results should be precisely assigned and monitored based on the proposed research and purpose of evaluation. Using our results from the application of different assays for different agents and on different cell lines, a discussion on conservative decision will be presented at the meeting.

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Affects of plain boiled water (H₂O) mixed with pure natural honey (Mel) in inflammation of the kidney (Nephritis)

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Abstract

Purpose of this clinical research study was, to determine the efficacy of plain water mixed with pure natural honey, to be used in the inflammation of the kidney (Nephritis) patients.

10 patients aged 18 to 21 years, (4 females, 6 males) with non- sever nephritis were given [three times a day] one standard glass of plain boiled water mixed with 4-table spoons of pure natural honey (Mel) for 14 days. Study was conducted at Herbs Research Foundation of Pakistan (Okara) during December 2003. Pre - clinical trials, 5 days wash out period were given, patients medical condition were assessed through Urinalysis.

After 14 days of study, significant decrease of albumin, protein, pus, blood, red and white blood cells and hyaline in patients urinalysis were noted, (while one patient (male) did not respond well).

The study provides convincing evidence that plain boiled water mixed with pure natural honey could be used in nephritis patients successfully.

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Extremophile culture collection from extreme area of Iran

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Abstract

The number of studies on extremophilic organisms has grown exponentially in the last few years. These exotic organisms (extremophiles) are adapted to living at 100 c. In volcanic springs, at low temperatures in the cold polar seas, at high pressure in the deep sea, at very low and high ph values (ph 0-1 or ph 10-11) or at high salt concentration (35%). Recent developments clearly show that cell components of extremophilic archaea and bacteria are unique and deliver a valuable source of new biocatalysts and compounds. Since many industrial enzymes are required to function under extreme conditions, there is also a considerable commercial pressure to discover stable biocatalysts in modern biotechnology. Extremophiles and their cell components, therefore are expected to play an important role in the chemical, food, pharmaceutical, paper and textile industries as well as environmental biotechnology.

The Iranian plateau has a very remote past which even history does not remember the sculptures and images of persepolis say of its glory.

The Iranian plateau, has been a stage to unique events within the spectrum of world transformations. throughout this immense and long lasting immigration from the north of Africa to the south of Asia and during all these geographical and climatic changes plants, animals and microorganisms become widely extinct. The better adapted and more efficient one appeared to substitute the extinct species, finally leading to the present form of the country.

Scientists geobotanically divide the northern hemisphere of the earth into four main regions, Iran is like a connecting stretch at the intersection of these four botanic regions and situation and factors from each of these regions influence the biodiversity of Iran.

Research on marine and terrestrial extremophiles microorganisms was started in Persian Gulf biotechnology research center to provide high quality lab and pilot plant service for isolation, identification, maintenance and screening of new active metabolites from microorganisms of different extreme area of Iran. The results of this study will be presented in this conference.

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Ethnobotany and biodiversity conservation-holistic approaches from Eastern Africa and Latin America

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Abstract

Scientists widely agree that species extinction has heavily accelerated in the last decades. A grave problem for the conservation of diversity is the still very fragmentary knowledge of the ecology of most species.

Attempts of sustainable management and conservation must integrate local communities and their traditional knowledge. Management decisions need to include the high importance of natural resources in providing building materials, food and medicines for rural as well as urbanized communities. The traditional use of plant resources, particularly of non-timber products like medicinal plants, has deep roots not only in indigenous communities, but is practiced in a wide section of society. The use of medicinal herbs is often an economically inevitable alternative to expensive western medicine. The base knowledge of this traditional use is passed from one generation to the next. Especially the medical use represents a highly dynamic, always evolving process, where new knowledge is constantly being obtained, and linked to traditional practices.

An increased emphasis is being placed on possible economic benefits especially of the medicinal use of plant products instead of pure timber harvesting-an approach particularly appealing to countries with difficult economic conditions. Examples from Eastern Africa and South America are being used to show the effects of integrated approaches to conserve biological and cultural diversity.

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Studies of the flora and Hunter bacteria of Jordan

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Abstract

Jordan University of Science and Technology (Irbid, Jordan), Research Triangle Institute (North Carolina, USA) and Virginia Polytechnic Institute and State University (Virginia, USA) were granted an R21 planning grant funded by FDA, USA through an International Cooperative Biodiversity Group (ICBG) program to study the Hashemite Kingdom of Jordan's flora and soil microorganism as a source of new drugs. Biodiversity proposed for investigation encompasses Jordanian plants, traditional botanicals and the innovative area of soil Hunter Bacteria. Compound discovery focuses on three primary pharmacological areas: antimicrobial activity, anticancer activity and central nervous system (CNS) activity. Intellectual property rights and consideration of the People of Jordan will be agreed to between the different parties as it is considered an essential component of such international work. Thirty soil samples, 100 g each, as a source of Hunter Bacteria were collected from 30 different sites in Jordan. Also, around 500 g of one hundred plants were randomly collected from different geographic zones in Jordan in collaboration with the National Center for Agriculture Research and Technology Transfer, Baq'a, Jordan. The purpose of such collections is to demonstrate that the country is an invaluable source of potential active medicinal samples and is a good representative, flora wise, of the Middle East region. Some promising preliminary results of the soil Hunter Bacteria and plants will be discussed.

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Ethnobotanical and ethnopharmaceutical study of Tturkmens of Golestan and Khorasan provinces, north of Iran

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Abstract

Ethnobotanical and ethnopharmaceutical studies are best way for screening medicinal properties of plants. Indigenous people use their native plants for medical purposes that may be of high potential and value for modern pharmacology. Turkmens are descendants of Oguz Turks and originally nomadic group. they are culturaly an isolated ethnic group inhabited in NE of Iran and taking ethnopharmaceutical research in this area would be of great interest.

Data have been collected through ethnopharmaceutical interviewes taken with elder people of tibes who where expert in medicinal plants, bonesetters and midvifes. Information on the medicinal plants, local names, plant part use, illness treatment, mode of preparation and adminstration were documented. also plant voucher specimens and plant materials for further chemical analysis have been collected.

Some native plant species have been recorded to have medicinal properties and usage. For example *Dorema hyrcanum* Koso.-Pol., *Ferula oopoda* (Boiss. & Buhse.) Boiss., *Euphorbia marschalliana*, *Caccinia macranthera* (Bankes & Sol.) Brand and *Biebersteinia multifida* DC.. Also some antique usages for other common and rare plants have been recorded. These plants are good targets for phytochemical analysis.

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The school of traditional Iranian medicine: The definition, origin and advantages

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Abstract

Traditional Iranian Medicine (TIM) consists of the sum total of all the knowledge and practices used in Persia from ancient times to now, from generation to generation relying exclusively on practical experience and observation handed down from generation to generation. TIM roots go back to over 2000 years ago and It is not too bold to go even further and claim that the Persians taught the Greeks the elements of that system of medicine, which has been known ever since as Greek medicine. Traditional medicine has special advantages with respect to all the imported medical systems; since it is considered as part of the people's culture; and has a significant role in solving some of the cultural issues of health. Simply, traditional medicine can be a good assistant and help to the scientific and universal medicine. Introduction, development, and promotion of traditional medicine are a respect and honor to the culture and heritage of the people all around the world.

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Harmony and conformity between principles of traditional medicine and our modern findings in science of physiology

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Abstract

In the first international congress on traditional medicine and materia medica, an article with the title of "Matching the principles and fundamentals of traditional medicine with findings and subjects in contemporary modern medicine" was presented and publication of a book in this matter was promised. The book was published with the title of "New insight in etiology, prevention and treatment of diseases" in the same year. Thereafter, more reasons were collected in support of the subjects presented in the book and various parts of that were discussed with and assessed by prominent professors of medical universities. Currently, one research project is being carried out with cooperation of Dr. Faramarz Fallahi, heart specialist, in Mostafa Khomeini Hospital, Tehran. Bellow, a paragraph of the mentioned book is pointed out:

"In the Iranian traditional medicine it is talked about heat, coldness, wetness and dryness. In other words, in this medicine special attention is given to two parameters of water and temperature. On the other hand, we know that endocrine system together with nervous system is the main systems to control the body vital activities and we can consider the pituitary gland as a leader and representative of the endocrine system. Hormones secreted by this gland control functions of most endocrine glands in the body and are as follows:

1. Growth hormone
2. Thyroid stimulating hormone (TSH)
3. Adrenocorticotrophic hormone (ACTH)
4. Follicle stimulating hormone (FSH)
5. Luteinizing hormone (LH)
6. Prolactin

Interestingly, the two of these six hormones are directly related to water and temperature of the body. ACTH plays essential role in regulation of water and TSH in regulation of body temperature. It can be concluded that deliberate harmony and conformity is observed between traditional medicine attention to water and temperature and our modern findings in science of physiology".

At the end I should point out that in the book references I neglected to mention the name of Dr. Masud Naasari's invaluable book named "One, Quantum, Mysticism & Medicine " from which I was inspired.

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Unani system of medicine and development of its materia medica

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Abstract

Pharmacy which is an art and science of preparing and dispensing drugs and Materia Medica gives the names, sources physical characters and chemical properties of herbs or substances used in medicine and their doses have been interwoven connected with medicine from the time immorial. This can be traced back to the findings of ancient Egyptian and Unani Physician like Hippocrates (460-377 B.C) Dioscorides (100 AD) Galen (131-210 AD) Geber (702-765 AD) and Al-Razi (850-925 AD) ibn Sina (980-1037) and others.

In the writing of Hippocrates nearly 400 are names as medicinal substances. He made and used fomentations, poultices, gargles, pills, lozenges, ointments, collyria and inhalations. Shortly after him Cornelius Celsus (100 A.D.) write on Pharmaceutical topics. He mentioned a preparation for tooth decay called 'sory' consisting the poppy seed, peeper and copper sulphate made into a paste with galbanum. Another early Greek physician of Rome was Dioscorides (100 AD) who was an authority on Materia Medica and Pharmacy. His work "De Materia Medica" remained the resource book on Materia Medica for centuries, but the Pharmacy was mixed with medicine in his period.

It was Galen (131-210) a product of Alexandria School and Unani Physician of Roman period, given the distinct identity to the art of pharmacy. He originated so many preparations which are known as "galenicals". He also written a book "De Composition medicamentorum" which! is a first organized medical formulary in the history of Pharmacy. Galens ideas about the drugs influenced the Europe for about 1300 century.

From fifth century onward Arabs started to develop Unani System of medicine and specially of pharmacy. It was Baghdad where the first pharmacy was opened, the owner of the drug stores were under the watchful eye of the drug inspectors to inspect the drugs and the methods of its preparations to avoid adulteration and substandard preparations. The Alqarabadin Kabir (Great Pharmacopoeia) of Sabur-bin-Sahl (d. 869 AD), the Director of the Hospital at Jandishapur was given the official status. Later on another formulary " Al-Dustur al-Bimaristan fal adviya al Murrakkaba" of Ibn Al-Bayan and that of "Ibn-al-Tilmiz" were given the official status. Serapion senior or Mesu senior (777-857) was physician to the Caliph Haroon he wrote " Qarabadin "Medicianarum Particularium" in Arabic, translated into Latin served as model for the first London Pharmacopoeia. Jabir Ibn Hayyan or Geber (702-765 AD) is the first to describe the methods of distillation, sublimation and calcinations. He is reputed for the discovery of 'oil of vitriol' (Sulphuric acid), nitric acid "aqua fortis" and of "aqua regia" Nitrohydrochloric acid etc.

Zakria Al-Razi (850-925 AD) contributed many books on pharmaceuticals subjects and introduced mercury ointment and was having well equipped laboratory.

Zuhravi or Albucasis (b 936) physician to Caliph Abdul Rahman at Cordova, was the author of the “Liber Servitoris” a book on Pharmaceuticals.

Ibn Sina or Avicenna (980-1037) a genius physician, author of the famous book “Al-Qanoon fil Tib” canon of medicine. Indeed Avicenna works considered authoritative and used by the university of Europe till 1650.

Ibn Zuhar or Avenzoar (b. 1113) he opposed the mysticism and astrology and contributed to the pharmacy and Alchemy the days of rule of Safavids in Persia were the golden age of pharmacologists. The first pharmacological monographs in Persian is “Kitabul Abnia un Hadiaqul-Advia” written by Abu Mansur Muwaffiq Herati (975 AD) dedicated to Sultan Mansur bin Nooh Samani!. This book contains 585 drugs of Greek, Syria, Arabic, Iranian and Indian origin.

Ibn Al-Baytar (d.1248) great Botanist and Pharmacologist, main work on single drug “Kitab al Jami li Mufridat al Adviya waL Aghdhiya very methodical and critical compilation of about 1400 drugs out of which about 300 (including 200 plants) are novelties. A latin translation by Andrew Alpagus was published in Venice (1593), Paris (1602) and Cremona (1758). A German translation of his writings was published at Stuttgart in 1840.

The greatest pharmacist of Shiraz (Iran) is al-ansari Haji Zainuddin al- Attar (b. 1329. He was personal physician of Shah Shuja. His significant contributions to Pharmacy are “Miftahul Khazain” and “Ikhtiarate-Badiee”.

Another pharmacist Shah Abbas Saf period is Muzaffar Bui Mohammad Al Hussain Al Shifai. He composed a pharmacopoeia called Tibb-e-Shifai (written in 1565). This has provided the foundation of pharmacopoeia Pessica of Augelus during Mogul period.

Another renowned physician of Safaui period is Hakim Imad Al-Din Mahmud Shirazi (1515-1592). He wrote number of treatise on medicine like Risalah Itrilal Bikh-i-chini etc. In India many standard Qaarabadin’s were written by eminent Indian physicians like Qarabadin Zakai (Hm. Zakaullah Khan) Qarahadin-e-Qadric (Hm. M. Akbar Arzani Ilajul Amraz (Hm. Shaarif Khan) Qarabadin-e-Samarqandi Najmuddin Samargandi). Qarahadin Darashikohi Najmaddin Mohnnud bin Abdullah) Qarabadin Najmul Ghani (Hm. Najmal Ghani) Qarabadin Azam (Hm. M. Azam Khan) Qarabadin Azam wa Akmal (Hm. Akmal Khan) Qarabadi Firangi (Hm. Jurji Disalna). The Govt. of India, Ministry of Health and FW has also published the Unani Pharmacopoeia of India Part-I Vol.I consisting the 45 monographs of single drugs and published 03 National Formulary of Unani Medicine Part I, II & III, consisting 745 formulations based on various Qarabadins written by Indian Unani physicians.

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The legacy of Islamic world in modern medicine and science

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Abstract

The legacy of the Islamic world in medicine and natural science is the legacy of Greece, increased by many additions, mostly practical. Rhazes, the Iranian, was a talented clinical observer, but not a Harvey. Abd al-Latif, the Arab, was a diligent seeker in anatomy, but in no way to be compared to Vesalius. The Muslims possessed excellent translations of the works of the Hippocratic Corpus and of Galen. All, even the long theoretical explanations of the latter, were well understood and well rendered by such intelligent and polyglot scholars as Hunayn. But the additions of the Islamic physicians refer almost solely to clinical and therapeutic experience. The theory and the thought of the Greeks were left untouched and treasured up after careful systematization and classification. It must be remembered that Muslims were strictly prohibited from dissecting either human bodies or living animals. Thus experiment was practically impossible in medicine, so that none of Galen's anatomical and physiological errors could be corrected. On the other hand, they received some impetus from the experience of Iranian, Indian, and Central Asian scholars concerning particular lines of treatment, operations, and the knowledge of drugs and minerals. This knowledge helped them to make progress in chemistry, although we are, as a matter of fact, not yet sufficiently informed to be able to state what is the share of Greece and what that of the Orient in the development of alchemy.

In other sciences some of the best Greek works were unknown to the Muslims, as, for example, the botany of Theophrastus. Their own share in this branch is a considerable one, but again, of purely practical importance. The Muslim scholars, although acute observers, were thinkers only in a restricted sense. It is the same in zoology, mineralogy, and mechanics. The glory of Muslim science is in the field of optics. Here the mathematical ability of an Alhazen and a Kamal al-Din outshone that of Euclid and Ptolemy. Real and lasting advances stand to their credit in this department of science.

When Islamic medicine and science came to a standstill, about 1100, they began to be transmitted to Europe in Latin translations. The state of monkish medicine in Europe at that period is vigorously described by Charles Singer in his Short History of Medicine: "Anatomy and Physiology perished. Prognosis was reduced to an absurd rule of thumb. Botany became a drug list. Superstitious practices crept in, and Medicine deteriorated into a collection of formulae, punctuated by incantations. The scientific stream, which is its life-blood, was dried up at its source."

This article reviews the lives and works of those mostly unknown translators who played an important role in transmission of Islamic science and medicine to Europeans. In the end, to see how this Muslims legacy in architecture of modern science and medicine was important for westerners, I am pointing to the beautiful quotation made by Sir Thomas Arnold in his Legacy of Islam: “Looking back we may say that Islamic medicine and science reflected the light of the Hellenic sun when its day had fled, and that they shone like a moon, illuminating the darkest night of the European middle ages; that some bright stars lent their own light, and that moon and stars alike faded at the dawn of a new day-the Renaissance. Since they had their share in the direction and introduction of that great movement, it may reasonably be claimed that they are with us yet”.

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Islamic and Iranian traditional materia medica works as the treasure for finding new effective drugs

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Abstract

The Materia Medica works of Rhazes, (vol2 of Canon), Al-Biruni (Kitab as -Saidana), Abu Mansur (Haqaiq al-Adwiya), Gorgani (Vol 9 and 10 of Zahira-e-Harazmsahi), Ansari Shirazi (Ihtiyarat-e-Bdi i), Hakim Mu min (Tuhfa) and Aqili Hurasani (Aqrabuzin-e Kabir) and others are the most important works of Islamic and Iranian physicians on Natural Drugs.

The systematic pharmacognostical, pharmacological, toxicological and chemical studies of the drugs which were used practically by these physicians are the best way to find new effective drugs for various illnesses

The over 30 years research work in Isfahan University of Medical Sciences on T.I.M has helped us to find the new effect of herbal drugs as follow:

Great antidiabetic effect of *Adiantum capillus-veneris*; effect of *Boswellia serrata* gumresin on *Urtica Dioica*; *Viola odorata*, *Calendula officinalis* and *Chelidonium majus*; antidiabetic effect of *Trigonella foenum-graecum* seeds and *Salvia officinalis*; great antifungal effect of *Zataria multiflora*, *Lawsonia inermis*, *Curcuma longa* and *Juglans regia*; increasing effect of *Tribulus terrestris* on sperm count; effect of *Zingiber officinale* on nausea and vomiting of pregnancy; antiaddiction effect of *Berberis vulgaris* bark on opiate and nicotine addict; effect of *Anthem graveolens* and *Trigonella foenum-graecum* on increasing of breast milk; effect of *Veratrum album* and *Fraxinus excelsior* on vitilligo; contraceptive effect of *Miralis jalapa*; antihirsutism effect of *Hyoscyamus niger* and *Conium maculatum* and others

As it is mentioned above the Materia Medica works of Islamic and Iranian scholars are at uncountable important and great treasure for finding new drugs for various illnesses.

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Bronchial asthma, symptomatology and therapeutic method in traditional medicine

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Abstract

Precise information on the treatment of bronchial asthma in Persia up to 9th and 10th century is not available. However according to some old religious books like Yasna and Vendidad, the "Haoma" had been used in the treatment of perspiration disorders and its extract had been advised by Zoroaster as sacred water.

There are some interesting ideas about treatment of thorax diseases, which consist: Dyspnea, Bronchial asthma, Orthopnea, Emphysema, Hemoptysis, Differential diagnosis between pneumonia and pleurisy, Differential diagnosis between bleeding of thorax and lung, Diaphragmitis, Atelectasis.....

Symptoms of disease: Three main symptoms of bronchial asthma have been described:

1- Special difficulty in breathing:

The patient can not breathe unless he turns his head backward, and his breathing is accompanied with wheezing and it is similar to that of a person who has run for a long time. Inspiration is difficult and expiration is long.

2- Presence of characteristic sputum which could be found either in trachea or in the lungs. Sputum could be expelled by coughing. In case sputum is present in the lungs there is less coughing and sputum expelling not as easy as in the former case.

3- The patient has disturbed plus.

Etiology: Ancient Iranian physicians have mentioned so many factors which are helpful in existence of this disease and consist of: smoke, dust, cold or coryza, enlargement of stomach, liver, cold temperament, nervous temperament, narrowness of larynx, Trachea, bronchiolus, bronchiole and lungs.

Treatment of real causes: For treatment it is necessary that the real reasons of the disease be diagnosed and the treatment depends on the cause of the bronchial asthma.

Treatment of real causes, treatment children and adult, medical plants, mineral drugs and biological drugs which have been used, and side treatment will be discussed in full paper.

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Researchers and professionals viewpoints on medicinal plant problems in Iran

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Abstract

Determination of the most important problems on medicinal plants in Iran in relation to Education, Management, Research and Development and Domestication of endemic and exotic medicinal plants.

This study was a measuremental study in 2002 based on 36 filled questionnaire distributed among researchers and professionals in Iran.

- 89 percent of researchers and professionals believed in a lack of academic education on medicinal plants in Iran.

- 85.7 percent of researchers and professionals suggested forming a professional organization on medicinal plants for leading all activities in this relation in Iran.

- 78 percent of researchers and professionals supposed domestication of medicinal plants especially for endemic species must be at the top of researches on medicinal plants.

The main problems on medicinal plants in Iran are lack of specialized education on medicinal plants in Iran educational system, absence of a professional organization on Medicinal Plants and non-organized researches on medicinal plants.

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On the materia medica of Dioscorides and a report about a copy of it in Tehran

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Abstract

The most important reference work for pharmacology in the Islamic Era is Materia Medica by Dioscorides, the Greek scientist. It's also named fi-hayuli-al-Tibb in the Islamic era. There are several different translation of this book in Arabic and Persian. In this article I'm going to introduce a manuscript of one the Arabic translation of this book which hasn't been mentioned in any bibliographies and directories yet.

This Ms. Is one of the best and most important manuscripts of this book which in Tehran today is maintained in the library of Golestan palace in Tehran.

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Three antioxidant phenylethanoid glycosides from the rhizomes of *Eremostachys pulvinaris* (family: Labiatae)

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Abstract

Eremostachys pulvinaris (family: Labiatae), one of the 60 species of the genus *Eremostachys*, occurs mainly in central Asian countries, e.g. Iran, Armenia, Ashgabad and the USSR. The rhizomes of this plant were collected from Tabriz in Azarbaijan province during September-October 2003.

There is no report on any previous phytochemical investigation on *E. pulvinaris* available to date, phytochemical studies on a few other species of *Eremostachys* revealed the presence of flavonoids and monoterpene glycosides

The dried and ground rhizomes of *E. glabra* (100 g) were Soxhlet-extracted, successively, with n-hexane, dichloromethane and methanol. The preparative reversed-phase HPLC analysis of the 40% methanolic Sep-Pack fraction resulted in the isolation of three phenylethanoid glycosides. The free radical scavenging activity and general toxicity of these compounds have been assessed.

The chemical structures of these compounds (forsythoside B, leucosceptoside A and verbascoside) have been elucidated by UV, ESIMS, and comprehensive 1D and 2D NMR analyses including COSY, NOESY, HMQC and HMBC., and also by comparing experimental data with respective literature data.

While none of these compounds has shown any significant general toxicity in the brine shrimp lethality assay (LD₅₀>1 mg/mL), forsythoside B, leucosceptoside A and verbascoside have displayed significant antioxidant activity in the DPPH assay (RC₅₀ = 0.0064, 0.0148 and 0.0079 mg/mL, respectively).

This is the first report on the occurrence of phenylethanoid glycosides in *E. glabra* and also in the genus *Eremostachys*. Isolation and identification of these compounds from the rhizomes of *E. glabra* of the family Lamiaceae might be chemotaxonomically significant.

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Suppression of severe airway inflammation with non-toxic dietary nutrients in histamine-challenged guinea pigs: A comparison with Ibuprofen

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Abstract

We hypothesize that selected combinations of nutrients commonly encountered in the human diet, suppress asthma-associated airway inflammation more effectively than currently available anti-inflammatory medications. Here we demonstrate that biflavones and terpenes, distributed widely in human diet (in this case derived from Ginkgo biloba) synergize with the carotenoid antioxidant astaxanthin and vitamin C to suppress asthma-associated inflammation in a guinea pig model.

Male Hartley guinea pigs treated with 10-1000 mg/kg Ibuprophen, or: EGb761 (0-100 mg/kg), astaxanthin (0-200 mg/kg), vitamin C (0-400 mg/kg), or combinations thereof, were ovalbumin sensitized, then challenged with ovalbumin aerosol to induce asthma. Each animal was evaluated for inflammation-associated indicators. Differential cell counts were performed on bronchoalveolar fluid using standard morphologic criteria to classify cells as eosinophils, neutrophils, or macrophages. Cyclic nucleotide (cAMP and cGMP) content in lung tissue was measured using radioimmunoassay.

Each disease indicator was significantly altered to a greater degree by combinations of drugs, than by components acting independently, or by Ibuprophen. Optimal combinations were identified that included astaxanthin (10 mg/kg), vitamin C (200 mg/kg), and EGb761 (10 mg/kg), resulting in counts of eosinophils and neutrophils each 1.6-fold lower; macrophages 1.8-fold lower, cAMP 1.4-fold higher; and cGMP 2.04-fold higher than levels in untreated animals ($p < 0.05$).

We show that selcted dosage combinations of common dietary nutrients are highly effective in suppressing inflammation. These formulations: i. suppress pathogenic T cell activation; ii. inhibit inflammatory mediator release; and iii. quench reactive oxygen. These three processes underly pathogenesis of all inflammatory disease. Current pharmacological strategies typically target only a limited aspect of these pathways (such as COX-2 or histamine activity). Conversely we suppress all simultaneously. It is anticipated that this approach will be particularly valuable in treatment of chronic airway disease associated with exposure to chemical weapons, in particular, "Mustard Lung" a chronic disorder seen in mustard agent victims.

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Plant medicine in the treatment of radiation-induced normal tissue lesions-A review

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Abstract

Radiation-induced normal tissue lesions, once seen as a consequence of loss of proliferative integrity of clonogenic target cells, inevitable and untreatable are now viewed as a result of dynamic interactions between multiple cell lines within a particular tissue that can be intervened. Normal tissue damage is the most important limiting factor in radiotherapy and a major component in the medical management of radiation accidents. In general irradiation leads to an acute stress response followed by late consequential lesion. The response is initiated through kinases, transcription factors and altered production of inflammatory cytokines followed by a chronic inflammatory process, resembling that of wound healing, which involves vascular and parenchymal cell dysfunction and cell loss. At present there is not an approved method for the treatment of radiation-induced normal tissue lesions. A number of agents with diverse modes of action have been used in post irradiation modification of radiation-induced normal tissue reactions. Plants, as a result of their longstanding exposure to environmental stress factors including radiation, have developed protective mechanisms and substances that can potentially be exploited for the treatment of radiation lesions.

Aloe vera, which is known for its wound healing effects and has been traditionally used for treating thermal burns and wounds, appears to be the oldest herbal agent used in the treatment of radiation lesions both in the form of fresh whole leaf or *Aloe vera* extract. The healing property of *Aloe vera*, which has been verified experimentally in recent years, has been attributed to mucilaginous mucopolysaccharides including acemannan and allantoin.

Oil extracted from evening primrose (*Oenothera* spp.) has been proven to be beneficial in the treatment of a number of radiation-induced lesions. The beneficial effect of evening primrose oil is attributed to its gamma linolenic acid (GLA) content through cyclooxygenase pathway.

Extracts of *Withania somnifera*, *Plumbago rosea* and *Ocimum sanctum* have also been reported to have protective effects against radiation damage.

Recently, persistent oxidative stress has been suggested as a common pathway in the development of radiation-induced lesions that has been demonstrated in a number of tissues such as skin, kidney and spinal cord. The beneficial effects of maidenhair tree (*Ginkgo biloba*), turmeric (*Curcuma longa*) and green tea (*Camellia sinensis*) can be attributed to their strong antioxidant activity.

This review article deals with plants medicines applicable in post-irradiation treatment of radiation lesions and discuss their modes of action.

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WHO global atlas on traditional, complementary and alternative medicine (TCAM)

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Abstract

Due to rising demand for traditional complementary and alternative medicine (TCAM) globally, international ministerial groups and professional bodies have been calling for a global perspective on policy and a means for countries to share information and policy initiatives with one another. The WHO Global Atlas is designed to: assess the status of development of the sector; plan for further developments; identify national and regional partners in the development process; plan further mechanisms for refining data collection and information sharing. It is a two-volume publication to be published in late 2004 by Imperial College Press, London. It contains approximately forty-five maps of different aspects of policy as they occur in different regions and countries of the world. From this collection of chapters and maps the WHO Global Atlas on TCAM will make it possible to identify trends in the formalization of TCAM around the world, particularly: patterns of legislation and regulation, issues in professional development, research priority and methodological challenges, and pathways and pitfalls on the road towards integration of TCAM into mainstream healthcare.

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Traditional medicine and intellectual property

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Abstract

Medical plants have a great value in traditional knowledge related to human health care both used whole plant or consisting in curative remedies.

These valuable uses has been led to commercial use of medicinal plants and their derivatives which makes great benefits. Also there is a growing desire to use of completely natural materials as curative drugs around the world.

These facts show up a growing global market for natural products with a growing benefit for stakeholders.

This figures show that we should pay attention to the importance of financial aspects of this issue.

In 1999, sales totaled US \$3 million, in 2001 US \$3.5 millions and in 2003, US \$/2.5 millions.

Meanwhile we should consider the importance of protecting the biological diversity of medicinal plants around the world which shall be harmonized with the efforts of the other United Nations organizations, especially B.D.C

It would be necessary to consider an effective mechanism which makes the possibility of having bigger shares of any benefits, for countries those have special species of medicinal plants or higher levels of yields in the same species. It may result in having special genes of geographical situations, environmental conditions, etc.

This benefit sharing should be effective even if countries or organizations other than the country of origin, establish the methods that lead to commercial products and gaining benefits.

Iran is among the very few countries which have a wide range of plants diversity including medicinal ones.

To prevent any misunderstanding and future problems, it would be necessary for international organizations, especially W.I.P.O., (World Intellectual Property Organization) to participate, both by investments and giving technical supports, to conduct such researches.

These helps provide same conditions for less developed countries, with more rich medicinal plants flore as well as developed countries with more technological and financial superiorities.

If we don't pay enough attention to intellectual property rights of traditional medicine, we will loss very financial benefits as experienced this lose in carpet industry.

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TST programme of USTC

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Abstract

Alternative medicine in Bangladesh context means Unani/Ayurvedic and Homeopathic medicine. Government recognizes and patronizes allopathic (modern and western) medicine. This system through Government Institutions viz. hospitals and health care centres can offer services to only about 30% people. The other two systems (Unani/Ayurvedic and Homeopathic) can serve 50-60% people.

Limited health manpower, financial resource and low per capita income all contribute to the poor health condition of the people. Alternative medicines are cheap, easily available locally, and popular among the poor. For extension of health care therefore the two systems viz. Modern or Allopathic and Alternative Medicines should work together and in constant comparison with each other. This process will remove misunderstanding between these systems and reveal the strength of each.

USTC therefore introduces these three systems of medicine through TST (Three Systems Together) programme under the same roof for outpatient treatment. This will facilitate treatment as well as research apart from establishing mutual relationship and cooperation.

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Traditional medicine: Where does it stand?

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Abstract

While earth is becoming a smaller village every day, the rapid population growth and ageing is impeding obvious shifting pattern of disease which in turn is inflecting great economic burden required for fast growing health expenditure particularly in the developing world whose suffering from this particular issue is turning into an inflated almost non-curable disease.

The major world population today is suffering from poverty and weak health status mainly in countries that find it extremely difficult to have proper plans and programs capable of solving such serious dull future.

Conventional Medicine with all its astonishing advancements still cannot satisfy public health demands a fact that could be generalized to all societies today but it is of very much concern to mankind in the developing countries. The serious challenges imposed on such societies to maintain reasonable healthy conditions are placing the Traditional Medicine in a very special position where some times willingly or compulsory it is holding a noticeable share in the health care delivery systems, some times officially recognized and some times without any national control socially accepted.

Scientists, Policy makers, Health care deliverers, Academies and International Organizations such as WHO are well aware of the great value of Traditional Medicine a matter that has been well reflected in many local and international meetings designed to reflect this fact and one can name few important ones held at the beginning of this century ; “WHO International Symposium on Traditional Medicine, September 11-13, 2000, Japan“ and “The International Consultative Meeting on Global Information on Traditional Medicine, WHO Kobe Center, September 19-21, 2001, Japan” and “The International Seminar on Integration of Traditional Medicine and Modern Medicine, October 12-15, 2002 in Cairo“ and “International Meeting on Global Atlas of Traditional Medicine, Kobe, June 17-19, Japan“.

Despite very serious attention paid to Traditional Medicine the fact remains though it is still under estimated, not regulated and misconceived while majority of countries worldwide are not giving it the weight it carries or deserves and not defined in the category of national programs intended for health care delivery systems and social welfare strategies. In addition academic curricula is strongly lacking practical revision of the role of Traditional Medicine in their educational set up to produce manpower capable of utilizing this rather important growing need as a skill required to meet national health needs.

Interestingly one can feel a global human desire to replace pure chemical curing agents with natural remedies and treatments a matter that worth emphasizing and demands special attention since we who care to provide satisfactory health care are responsible to respond to the clients wish and needs.

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Anti-inflammatory drugs in the texts of traditional Iranian Medicine (Tim)

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Abstract

Nonsteroidal anti-inflammatory drugs (NSAIDs) and glucocorticoids, nowadays are the main groups of anti-inflammatory drugs in modern pharmacology. The side effects of these anti-inflammatory drugs, especially using in chronic diseases cause many problems for the patients and the physicians, so finding the new anti-inflammatory drugs with less side effect is the aim of many researchers.

WHO emphasizes Traditional medicine as an important field of health study and Traditional Iranian Medicine (TIM) is a treasure of medications. In this study drugs with anti-inflammatory property from the point of view of Iranian scientists are investigated and the list of anti-inflammatory drugs on the basis of TIM texts has been ranked.

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Effects of medicinal plants on the Vitiligo

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Abstract

Vitiligo is a skin disease that has been known about for at least 5000 years, but little has been done to understand its causes or to evaluate possible treatment. It is not a painful condition and perhaps that is why it is often trivialized and left untreated. Vitiligo is characterized by depigmented areas of skin. There are several different theories

One theory is that people develop antibodies that destroy the melanocytes in their own bodies. Another theory is that melanocytes destroy themselves finally some people have reported that a single event such as sunburn or emotional distress triggered vitiligo. Epidemiological studies suggest that several genes may be involved, as well as environmental factors. Or demonstration of cytotoxic T-lymphocytes and their activation status in site in active vitiligo is one of the reasons.

Medicinal plants have been used for treatment of different disorders particularly vitiligo.

Invitro and Invivo research on various medicinal plants which used in traditional medicine of Iran have characterized secondary metabolites of plants (e.g. Polysacharide, Flavonoid, Tannin, Saponin, Lignin, Alkaloid ...) which are responsible for this effect with different mechanisms.

This paper will discuss about some medicinal plants which have been used by our great scientists Razi and Sina for treatment of vitiligo, and some plants used by people for remedy of this disease.

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Introduce Bahaodoleh Razi and Kholasato-tajarob

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Abstract

Bahaodoleh Razi Tarashti was born in taTarasht village of Rey (in northwest of present Tehran). He ended up the medical education in Rey and trend to practicing and learning medicine contemporary as spiritual guide of Noorbakhshi group.

Although the birthday of Bahaodoleh is not clear exactly, bases on evidences, he probably has been killed in fractional struggle by agents of king Esmaeel Safavi at middle age about 915 after Hejrat. Bahaodoleh has written after ohammadebneZakariayeRazi the best book in clinical medicine profiting from his foundings and experiences. He is the first physician who has effectively described whooping cough. He has repeated Razi"s experiences in diagnosing Allergic diseases especially Allergic rhinitis, and has suitably explained them. His Kholasato-Tajarob that apparently is the only work that has reached us from this unparalleled scientist, is arranged in 25 parts. It includes the privat experiences of Bahaodoleh as well as his observations and epidemic reports. Hehas discovered a vaccination of smollpox for the first time and he seems to be the first physician who has discussed sexually transmitted diseases such as sifilis ina scientific way. Specific attention to clinical medicine and acquire experience with the patient is the most important Bahaodoleh characters bases on. It refers at his book by the name of Kholasato-Tajarob. In detailed of this essay, there are the collection of clinical history about various diseases that has been menthionedin Kholasato-Tajarob.

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Complementary/alternative medicine: knowledge, attitudes and practice among general practitioners in Tehran, Iran

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Abstract

To investigate about knowledge, attitude and practice among general practitioners in Tehran, Iran.

Using a short questionnaire 339 physicians was entered into the study. The subjects were approached during the 13 compulsory postgraduate courses.

The study findings indicate that 84.9% of general practitioners believe that the use of alternative therapies is mounting yearly and herbal medicine; cupping and acupuncture (respectively) are the most common methods being used.

There were at least 9.9% of physicians using one or more methods of complementary medicine in practice and 24% of them had referred their patients to alternative therapist during the last 6 months. The knowledge of the majority of general practitioners about the most of the common procedures was very limited. Physicians besides having emphasis on supervision of such activities, disagree strongly with these methods being performed by non-physicians.

Overall physicians had positive attitudes toward usefulness of complementary methods. However, there is need to improve their knowledge on the topic.

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Study on herbal medicine prescription and selling in drugstores of Esfahan

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Abstract

- Determining people trend to herbal medicine consumption since 10 years ago.
 - Numbers of drugstores which directly prescribe herbal medicines.
 - Numbers of prescriptions which contain herbal medicine as a medicinal item.
 - Awareness of medical and pharmaceutical students on herbal medicine.
 - Supply sources of herbal medicines for drugstores.
 - Herbal medicine problems in relation to prescription and consumption
- This study was a measuremental study in 2002 based on 30 filled questionnaire distributed among drugstores in Esfahan
- Consumption of herbal medicines has increased since 10 years ago.
 - Culture of the people, population and situation of drugstores in each district are the most important factors affecting on the people numbers who attend to drugstores.
 - 80 percent of the people who attend to drugstores for herbal medicines were female.
 - 53.4 percent of people who attend to drugstores for herbal medicines were between 20-40 years old, 46.6 percent were more than 40 and nobody under 20 years old.
 - 86.6 percent of pharmacists were directly recommending and prescribing herbal medicines for people.
 - Less than 30 percent of prescription which received to the drugstores have herbal medicine as a medicinal item.
 - 87 percent of herbal medicine demands were for digestive problems.
 - 90 percent of herbal medicines in drugstores were made domestically and 10 percent were imported.

Herbal medicine consumption is growing up and needs to be controlled and managed not only for their quality but also for proper prescription by physicians and pharmacists.

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Introduction and correction of a treatise of Avicenna; "Alhendeba"

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Abstract

According to researchers of manuscripts, the treatise of Alhendeba is certainly a work of Avicenna's own writing. This treatise, written in Arabic, is Avicenna's reply to an inquisition presented to him, questioning the reason chicory (Alhendeba) should not be washed at the time of consumption. Avicenna answers using the Prophet Mohammed's narration about chicory and adds his own scientific explanation and analysis. He explains that Chicory consists of two types of matter, each of opposite effect. The first matter, which there is proportionately less of, has its location on the surface of the leaves and is called "Latif" (the material that easily enters the circulation opens the obstructions and helps the absorption and delivery of other materials to far organs.) The other matter that there is more of is called "Kasif" (which is the condensed and cold material which cannot pass and arrive to target organs easily). Washing chicory brings about the loss of the first matter located on the leaves or the "Latif" part of the plant, thereby reducing the ability of chicory to penetrate the organs, especially the liver.

There are a few copies of this manuscript in the Malek Library and the Central Library of Tehran University.

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Assessment public traditional medicine application barrieres in iran

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Abstract

Traditional medicine are used by some 60% of worlds population and in some countries are extensively incorporated into the public health system. There are two types of evidence that can be used to support claims on traditional medicine; scientific evidence and traditional use. Long hystorical use of traditional medocine provide the safty and efficacy of it but it is not enough without enough scientific research. iarnian traditional medicine use support traditional medicine but not scientific evidence as we assessed traditiona medicine researches in iran, there are 68, 22, 4 descriptive, experimental and clinical trial published researches that is not sufficient to support traditional medicine public use. the reasons for the lack of research data are due not only to health care policies but also to a lack of adequate or accepted research metodology for evaluating safty and efficacy of traditional medicine so more reseaches is need for public traditional medicine application by providing supportive health care policies and adequate research methodology.

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Management of dental ache in Ghanoon

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Abstract

With due regard to the side effects of some modern medications in the recent years, attentions have been drawn to some other alternatives such as herbal medicine. The latter drives from traditional and eastern medicine. Pioneers such as Avicenna are at the center of eastern, Iranian and Islamic medicine.

This research aims at drawing attention of physicians, dentists and researchers to the subjects brought in dental aches in Ghanoon by Avicenna.

In this work different parts of book Nos.1-5 Avicenna, which are regarding oral and dental chapters, have been selected and chosen. Avicenna has paid attention to oral and dental aches in the modern framework and based on the medical principles of the today's methods. In the first step, he focuses on the primary prevention and presents 8 principles such as:

- 1- Non-eating and drinking of some foods and beverages.
- 2- Good chewing of sweet foodstuff.
- 3- Avoiding breaking hard subject by tooth.
- 4- Avoiding using materials that slackens the tooth.

In the second step, for more and better treatment, Avicenna divides dental aches into some main groups and describes them in full details.

- 1- Dental-related aches.
- 2- Dental nerves-related aches.
- 3- Gingival related aches.

In Ghanoon, in addition to above anatomical classification, divides dental aches, physiologically (element, attitudes and humors), into three different kinds:

- 1- Bad temperament resulting from coldness and warmth.
- 2- Dry temperament resulting from lack of nutrients' receipt.
- 3- Bad temperament accompanied by abscess and emphysema.

In Ghanoon, and for curing toothaches, other treating ways and sometimes, pulling out of tooth has been recommended.

Dentistry discussions in GHANOON can create and establish suitable research and appropriate investigations specifically in dental audiopathic pains (achings) upon pharmacologic and clinical detection can utilize plant medicine (herbal pharmacogonsy).

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Ibn a`Nnafees and his masterpiece "al-Mujaz"

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Abstract

Abu-al-Hassan, Ala-a`Ddeen Ali Ibn Abe`l-Hazm Ibn a`Nnafees al-Qurashi a`Ddimashqi (607-687 A.H.) was born in Damascus, wherein he grew up and was occupied studying sciences as syntax, jurisprudence, medicine, theology, tradition, logic, etc.

His most well known masters in medicine were Muhadhhib a`Ddeen a`Ddakhwar and Umran Israeli. After completing his studies, he left Damascus for Cairo, where he started lecturing and meanwhile giving medical treatments to the sick in a hospital.

At the same time, his knowledge on various fields of study was overspread and admirable. About 36 books have been remained from him, most of which, still unpublished. The following list is only some of his major books on medicine:

The Explanation of Hippocrates "Aphorism", the commentary of Galen's "Anatomy", the explanation of "The prognosis", the explanation of the "Canon", the explanation of "The materia medica", "al-Mujaz fi`Ttibt", "a`Shshamil fi`Ttibt" that has been including 300 volumes of which only 80 volumes have been copied fair, and "al-Muhadhhab fi`l-kuhl" which contains the whole knowledge of ophthalmology in Islamic Medicine.

From Ibn-a`Nnafees, there have also been remained some compilations on other fields of science as logic, philology, jurisprudence, syntax, tradition and so on.

What has caused Ibn -a`Nnafees fame to be world spread is the pulmonary circulation which he has discovered for the first time.

As it is mentioned one of his important books is "al-Mujaz". This book is an extract of whole parts of the "Canon" of Ibn Sina, except the two parts of anatomy and physiology. As one of the most well-known books of Ibn-a`Nnafees, it has obtained more than ten commentaries including Nafis-Ibn-Awadh al-Kermani`s which is apparently considered to be the best, Aghsaraii`s, Aghsati`s, Bolboly`s and Kazerooni`s commentaries.

The book "al-Mujaz" consists of four main parts: The first part contains the general principles of theoretical and practical medicine. It discusses some important points dealing with natural affairs, conditions of the body, causes and symptoms.

In the practical medicine, some general principles about hygiene and therapeutics have been stated

The second part includes the terminology of the materia medica. About 200 simple drugs with mineral, plant and animal origins, written according to the arithmetical arrangement of the Arabic alphabets (Abjad alphabetical order). In each monograph there have been stated points about temperament, peculiarity, dosages and adverse effects of each drug. There have also been inserted names and the ways of preparing some compound drugs.

The third part talks about the diseases of the whole organs of the body. In any case the temper of organs, the related diseases, sorts, symptoms and way of treatment including nutrition therapy and drug therapy have been explained. This part consists of the main volume of the book.

The fourth and the last part of the book is allocated the diseases which are not special for a certain organ. In the six chapters of this part, there are some explanations about the different sorts of fever, crisis, inflammations, pustules, leprosy, epidemic diseases, the methods of preventing them, orthopedic, kinds of trauma, cosmetics, and diseases of skin and hair, and finally information about poisons, methods of preventing them and treatment of poisoning.

"Al-Mujaz" has been corrected by Abd-al-Kareem al-Azbavi and Ahmad Ammar, and published by committee of revival of Islamic Inheritance in Cairo (1422 A.H. / 2001 A.D.).

This book is under translating into Persian by the authors of the article.

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The situation of phlebotomy and wet cupping in traditional medicine of Iran

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Abstract

The traditional and Islamic medicine is based on bringing out the wasted and hazardous materials from the body.

For this reason well known ancient physicians used to do phlebotomy, wet cupping, vomiting, administer laxatives, enema and various other methods.

Fortunately, wet cupping is known as an effective method in prevention and treatment for numbers of diseases even by medical society nowadays and there are increasing numbers of physicians who use this method. The other method used, is phlebotomy that can be recommended on different regions of the body and each of them has a special therapeutic effect but has not become known as well as wet cupping.

The routine phlebotomy is the "blood transfusion" in which only one of the body vessels is used and the aim is to donate blood but the traditional medical aspect of phlebotomy is something completely different, which is applied only for therapeutic reasons (established on special body vessels and taking out significant amount of blood that might be applied of the arms, legs, frontal region or even sublingual vessels etc.)

This article presents the effects of phlebotomy and wet cupping in the treatment of some diseases. An opinion for treatment of 43 diseases described by an ancient philosopher and physician named Jorjani is also collected in this article. Jorjani used phlebotomy and wet cupping beside medical treatment to get better results. His comments on the effectiveness of wet cupping and its indications and timing are also mentioned in this article.

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The importance of cancer therapy in the Iranian traditional medicine

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Abstract

Cancer is one of the most important diseases from ancient time, which is mentioned by early Islamic and Iranian physicians such as Rhazes, Avicenna, Akhawaini and Jorgani. They knew the different kind of cancer and have distinguished between various kind of normal tumors and cancer tumors. Jorgani explains well the organs which are susceptible to become cancer and mentions, that by the women it affects more at the breast and uterus and by men at the throat, testicle, genitals and intestine.

The works of the above mentioned scholars were studied systematically and compared with each others. The result is as follow:

By the treatment of intestine cancer they have recommended to make any operation and the use of drugs such as almond oil, small fishes, spinach and pumpkin. By another kind of cancers, they have recommended to use vomiting drugs such as milk water, ephetimium at milk water or at honey water. Very important is they belief on the cold taking of the liver with some foods and ointments and the use of tautens with rose oil, lead filings at cichoric water or coriander water and the extract of lettuce and portulac or plantago mucilage topical. For infected cancers they have used the cleansing of tumors with felouwort, frankincense and lead ash. The surgical operations is recommended only by small tumors and the tumors, which are far away from basic organs. They have recommended the cauterization after the surgical operations.

The knowledge of the ancient Islamic and Iranian physicians on cancer was very developed and the principle of the treatment was logic. The use of lead preparations by local and oral uses was very developed, and the use of herbal drugs with antiinflammatory effect was very expanded.

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Long-term efficacy of hero-mineral preparation on the rate of increase of serum creatinine and serum urea levels

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Abstract

Treatment of kidney diseases with a combination therapy of allopathic and traditional medicines with special reference to the role herbal medicines in maintaining serum creatinine and Serum Urea Levels without the dialysis procedures, thereby the patient benefits in less dependence on dialysis and treatment.

The aim of this study was to determine the long-term efficacy of hero-mineral preparation on the rate of increase of serum creatinine and serum urea levels and gradual withdrawal of these medicines making the system capable of doing it itself vis a vis only the dialysis route which the dependence increases, finally leading to transplant procedures.

Increasing kidney diseases, leading to greatly raised serum creatinine and serum urea level because of CRF and contraction of kidney (s), albuminuria and other associated factors are being noticed at an alarming rate.

Imbalance in body humours (Ikhlaat) especially formation and retention of SAUDIA (Black bile) because of faulty dietary habit and abundant and indiscriminate use of fertilizers, presence of pollutants and an increased intake of symptom alleviating allopathic drugs because of work pressure takes its toll resulting in the SOOE-MIZAJ-MAADI of the Urinary system in general and of the kidneys in particular leading to the dreaded ailment.

Anemia contributes markedly to morbidity in these patients and may be responsible for the system not being able to detoxify itself.

With this type of combination treatment and changes in life style and diet during therapy as per the principles of “Tibb” during and afterwards resulted in significant decrease in serum urea levels and prolonged treatment even finished the dependency on the dialysis procedure and transplant.

Hakim Khawar Nawab holds a degree in Unani Medicine and is a practicing physician in lucknow.

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Role and relevance of traditional medicine in the present era

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Abstract

There are several systems of medicine practiced in the world, every system with its own basis, philosophy and therapeutics but with one common object: alleviation of disease.

The knowledge of drugs goes back to prehistoric time. Man savage must have known by experience how to relieve his suffering by the use of herbs growing in his vicinity.

Records of ancient civilization show that a considerable no of drugs used by modern medicines were already in use in ancient times.

The Egyptians, Babylonias, Greeks, Romans, Chinese and the people of the subcontinent of India and Pakistan, all develop there characteristic material medica.

Here, a brief contrast has been conducted between the modern allopathic treatment and that of the traditional medicines.

Generally in the case of allopathic mode of management, if the initial response to a specific compound is to an extend agreeable the prescription is invariably continued and in case where the dosage is incremented, the chemical build-up in the body is certain. The allopathic drug management though helps in providing symptomatic relief but persistent side of effects are in inevitable.

Traditional medicine on the other hand differs remarkably in its approach and its mythology incorporates the prognosis that stress more on the causative treatment along with the symptomatic besides, the implementation of natural and herbal medicine which have since ages established and confirm their authenticity as resources of therapeutic importance, there is definitely no fear of lethal and toxic chemical build-up in the tissues leading to and effecting different organ system.

Apart from this, the treatment or management through natural medicines provides relief as there are no side effects whatsoever, inspite the system focuses on a more holistic approach and simultaneously being more individual oriented so as to maximize the efficacy of the therapy.

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The comparison of biochemical factors in phlebotomy and wet cupping

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Abstract

The density of biochemical factors of blood in wet cupping is statistically different from phlebotomy

In summary we have cupped 40 volunteers and at the same time we sampled their venous blood. Then wet cupping and venous samples were sent to the lab for comparing blood triglyceride, cholesterol, sugar, urea, uric acid and creatinine factors.

The results show that there are significant differences between the components of blood in phlebotomy in comparison with wet cupping.

Wet cupping is generally different from phlebotomy so patients can not be advised to donate their blood instead of wet cupping just by this claim that wet cupping is an old method.

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Human morphology from view point of traditional medicine

SS Moravveji

Abstract

Traditional Iranian Medicine (T.I.M.) is a branch of natural history sciences that has originated from theoretical wisdom. The philosophy of this medicine is dependent on the hakims and philosophers viewpoint to the world and then to the fashion and general quality of its parts. This holistically viewpoint to the human beside available intellectual comparisons and partition in medicine (Unlike what is believed today that the ancient sciences, especially medicine, were only achieved by multiple experiences) has caused the principles of this medicine to be fixed and be welcomed by the people of each era for thousands of years except two recent century.

In traditional medicine human consist of three parts: dirty body _ fairy body _ spirit (Ruh). These are in interaction with each other and one can influence the others. This article addresses and explains these parts and demarcates all them along with intellectual bases and structures of traditional medicine. It covers some problems such as: difference between vaporous spirit and nafsani spirit (human spirit) - discussion of spirit physical temperament (Mizaj) and body mizaj -
... .

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Use of cold therapy in traditional and new medicine

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Abstract

Cold therapy are as an oldest method that used for treatment of truma and pain and as a folk remedy that use for relife of spasm and inflamation. Cold can exert a profound physiological effect on the body especially of reducing inflammation caused by injuries to the musculoskeletal system. Because reduction of inflammation is the primary goal, cryotherapy is the treatment of choise for the first 24 to 48 hours after an injury. Vasoconstriction resulting from cold application reduces blood flow to the injured part and thus reduces fluid accumulation and slows bleeding and hematoma formation associated with trauma. The lower temperature also suppresses muscle spasm and produces a local anesthetic response. When used appropriately, cold applications can significantly lessen pain and immobility by reducing swelling of injured tissues. Cold is also indicated as an adjunct analgesic for chronic pain and spasticity control. It can also be used as analgesic after arthroscopic surgical procedures. Cold modalities that simultaneously provide compression are extermely effective in treating acute musculoskeletal injuries that are associated with soft tissue swelling. Elevating the extremity during treatment further augments venous return. Application of cold or cryotherapy can be accomplished through many therapeutic modalities, such as moist cold compresses, chemical or cold packs, electromechanical or compression devices, or immersion of a body part into a cold soak. In this paper we try to describe regarding to cold therapy in traditional and new medicine.

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Cancer in ancient iranian medical books

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Abstract

In medical history of different nations, there are numerous documents concerning cancer. The present study is an investigation in ancient books to determine the part that medicine of Iran has played in the recognition of cancer. In all 31 Iranian medical and 5 Islamic medicine books mostly from 8 to 18 cent. A.D. have been examined.

The findings showed that cancer in ancient medical books of Iran has been categorized under "swellings" and classified as "solid tumor" and "cold swelling". Like other diseases, the etiology of cancer has been related to four humours. Also the role of nutrition in cancer development has not been neglected. Concerning clinical manifestations, it has been discussed that cancer in early stages lacks clinical manifestations but with its development gradually its symptoms and signs appear. Cancer was found to be more common in women and the most common organs involved indicated as breast and uterus in women and pharynx, larynx, gut and genitalia in men. Cancer was known to be more common in cold geographical areas and outbreak was reported in autumn. To differentiate cancer from other swellings, it has been recommended that all swellings must be viewed using clinical and physical examination including examination of hardness of the mass, the adhesiveness of the mass to the affected area, pain, degree of the development of swelling, the degree of heat of the mass when it is touched, the color of the mass, peripheral vessels and those branched out, the inflammation, and sensation or lack of sensation in the affected area. Concerning the prognosis of cancer, there was an agreement on its poor prognosis but some factors were considered important. Concerning the treatment of cancer, it was believed that although there is no complete cure for cancer, the treatment of cancer (medical management, surgery, diet) should be considered in its early stages. The findings from this study indicate that in ancient Iranian medical books cancer has been thoroughly investigated from different perspectives that still have maintained their scientific merits.

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The effect of cupping (hejamat) on blood biochemical and immunological parameters

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Abstract

Cupping is a traditional method of treatment in which a jar is attached to the skin surface to cause local congestion through the negative pressure created. Cupping is a therapeutic process of removing unclean blood from the body. There are many case reports witch cupping can affects a large group of blood related disorders. The aim of this research is achieving of relation between some blood parameters and wet cupping.

Statistical samples were selected from the young health male (20-27 years old) and the parameters were tested before cupping and five times after cupping (one time per month). Data was analyzed by SPSS software.

Some blood parameters including IgA, IgG, IgM, C3, C4, Alb, TSH, T3UP, T3, T4, ALK, P, Ca, CREAT, SGPT, SGOT, LDL, HDL, TG, CHOL, UA, BUN, FBS, MCV, MCH, MCHC, WBC, EOS, MONO, LYMBP, POLY, Hb, and HCT were tested. The significant changes were observed only in Cholesterol, HDL, LDL, and FBS.

Interestingly our results showed that cupping can regulate some blood parameters such as Cholesterol, HDL, LDL, and FBS.

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Introduction of Kitab Al-Abnija al haqaiq al-Adwiya a book written by Heravi

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Abstract

The "Kitab al-abniya an haqa iq al-adwiya" (Book of the Foundations of Pharmacognosy) also Known as "Rozat ol-ons wa manfa 'ar on-nafs" is the most ancient medical book in Persian (Farsi), which was written by Abu Mansur Movaffaq ibn Ali Heravi during the period of Mansur ibn Noh Samani between the years 350 to 366 lunar hegira. The book deals with 584 mineral, herbal and animal-based drugs. The book is arranged in alphabetical order. Each monograph includes name of drug and the burmorous quality therapeutic effects, methods of countering the side effects, and dosage of the drug.

The manuscript of the book written in Shawwal of the year 447 lunar hegira by the famous poet and lexicographer, Ali ibn Ahmad Asadi Tusi, the outhors Garshasb Nameh and Farhang Asadi, is in fact the most ancient Farsi version that bears a date. This copy was printed photographically by the orientalist, F.R. Zeligmann, in 1859, which was later by the Association of National Works.

Later, the late Master Ahmad Bahmanyar prepared the book with marginal notes and detailed annotations annotations. Unfortunately, the typewritten copy containing the annotations was lost, and the original copy excluding the annoationsurvived and was later published by the University Press by the efforts of the defunct Dr. Hossein Mahboubi Ardekani. The late Dr. Mahbubi prepared lists of the entries consisting of the list of categories, ingredients, place names, geographical index, diseases, limbs, applications and effects, bibliographical index, names of animals, tools and artifacts, foods, weights and quantities, and finally the words and terminology of the book as well as a list of the duplicate copies and their differences. He appended these lists to the book, and also provided brief useful and concise explanation on the monograph concerned.

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Documentation of traditional knowledge about wild medicinal plants of moist temperate Himalayas in Pakistan

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Abstract

The moist temperate Himalayas, as one of the major ecological zone of Pakistan, deserve specific attention to the conservation of environment and the sustainable development of natural resources. During the last hundred years, the area has been subjected to major structural changes leading to a decrease of about fifty per cent of the potential forest area. The decrease in forest cover, combined with major changes in community structure has been responsible for the decline of indigenous medicinal plants resources and their traditional knowledge also. Ayubia National Park has been identified as one of the priority area to be focused for medicinal plant conservation.

The study was aimed to analyze traditional knowledge including local names, general distribution, flowering period, part used, medicinal and other uses, market values and taxonomic diversity of the medicinal plant of the area

The field surveys were conducted by adopting predefined questionnaires through guided and transect walks. The market oriented indigenous species have been subjected through IUCN criterion for evaluation of their conservation status.

Traditional knowledge about 117 indigenous medicinal plants (including 8 cultivated ones) have been collected from 140 informants. Women followed by children have been identified as the principle gatherers of medicinal plants. About 44 species were found to be market oriented. According to this criterion, eleven species including two trees (*Juglans regia*, *Taxus wallichiana*), one shrub (*Berberis lycium*) and eight herbaceous species (*Asparagus adscendens*, *Atropa acuminata*, *Colchicum luteum*, *Dioscorea deltoidea*, *Podophyllum hexandrum*, *Rheum australe*, *Saussurea costus* and *Valeriana jatamansi*) have been found as endangered.

It has been concluded that Traditional knowledge in Moist Temperate Himalayas of Pakistan is under threat of being lost. Availability of cultivated land is quite less, the establishment of botanical gardens, home gardens or kitchen gardens may be the best ex situ conservation strategy, which can be adopted for sustainable utilization of medicinal plants. While clearly defined land tenure system and community participation in park management will be the best in situ conservation measure for adoption.

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Avicenna and his literary

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Abstract

Abu Ali Hossein Ebn Abdullah Ben Ali Ben Sinna entitled as Shayhk-o-Rayeis in the East and well known in the west by the name of Avicenna was born in a place called Afsharneh near the city of Bokhara in 980 AD but resided in the city of Balkh. He was five years old when his father took him to the city of Bokhara to study Holy Quran where his extraordinary memory became apparent and he memorized the Holy book very quickly. Then he studied literary and oratory disciplines and later learned Algebra, Mathematics and Geometry under the guidance of a master called Mahmoud. Afterwards, he became the pupil of Abul-Hassan Koushyar and learned every thing that he knew about astrology in less than a year. Therefore, he turned his attention toward theology and philosophy. Abu Sahl who was an expert physician himself, persuaded Avicenna to study medicine and he became a general physician at the age of 16. His multi-dimensional studies included Quranic disciplines, Law, Logic, Theology, Mathematics, Astrology and Medicine. He did not reach the age of 60, but his literary works influenced Europe for many years. Some of his books are regarded prominent in these fields. Although Avicenna had many entanglements and worries like captivity, he was able to write 476 books and articles in the above-mentioned sciences, which 246 of these books and articles are still available and are kept in various libraries throughout the world. His medical books written in 8 volumes have had immense effect on the development of medicine in the world, particularly in Europe. His first medical book was written in the context of Honain's medical practices and it is available only in form of handwriting. Then he wrote a book about colic, which was his specialty and later he completed the books of Ghanoon (Canon) and the limits of medicine. His article about cardiac medicine and drugs is regarded as one of his prominent literary works after his books of Ghanoon (Canon) and Shafaa (Remedy). His other book called Al-Mabdah contains an especial chapter about psychology. The books written by Razi and Avicenna were the only medical books taught in European medical colleges from 12th to 17th centuries and the book of Canon was considered as a reference book by the researcher throughout the world even in late 18th century.

The above article is a brief glance at the life of Avicenna, his literary works and a selection of his suggestions and prescribed drugs in the field of gynecology and obstetrics taken from his book of canon.

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Jorjanie and Zakhireh Kharazmshahi

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Abstract

Jorjanie was born in 433 AH. Elgod said: there is no exact information about his birth place and his date of birth is in the middle of 11th century. He was a student of Ebn Abi Sadegh, the famous Iranian physician. Ebn Abi Sadegh joined the two famous Iranian physicians because he was student of Avicenna for some time and at the end of his life he had a student, which was brilliant and intelligent enough to learn anything his teacher, could teach him. This student was Jorjanie. Jorjanie went to Kharazm from Jorjan when he was very young. There he started to work for the first king of khaeazmian (Ghotbodine Mohamad Ebn Anoushtakin) He lived in the same century as Sultan Sanjar. He lived in Marve for many years. He died in the same time in 535 AH. Elgod said: he died in 1136- 1140. His famous book Zakhireh Kharazmshahi consists of nine books. It is as tick as canon of Avicenna, but slightly smaller than Content of Rhases. His sixth book is about Gynecological disease.

Zakhireh Kharazmshahi is one of the most famous books of traditional medicine of Iran, which consists of practical and theoretical medicine in nine chapters. The chapters are health, general disease, anatomy, treatment, differential diagnosis, disease, fractures and surgery, toxins, anti toxins and drugs. Jorjanie wrote five important books, which Zakhireh Kharazmshahi is the most important. This book after Rhases's and Avicenna's books is in the third place, which had been used by medical students.

Zakhireh Kharazmshahi is an important book because of its technique in writing and it can be used as an encyclopedia and contains standard technical medical vocabularies. Jorjanie tactfully joined Arabic synonym words of Rhases and Avicenna words used commonly in the books of these writers.

This article looks briefly at certain chapters of Zakhireh Kharazmshahi of Jorjanie.

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Medicine in Zoroastrian School

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Abstract

Medical history in ancient Iran began with the immigration of Aryans to Iran about 30 centuries before Christ. Zoroastrians believed that the first physician was Thirta and the great physician in Zoroastrian era called Thraetoon was the inventor of medical science and the killer of the wicked soul. Followers of Zoroaster claimed that Ahoramazda created goodness and Ahriman managed to create pain and suffering out of conspiracy. As a result there was a continuous fight between evil and good, between disease and health, and between Ahriman and Ahoramazda. Aryans knew disease to be a disaster sent down from the sky and mental diseases were claimed to be the manifestation of the wicked souls in human beings.

There were two medical schools in Ancient Iran, namely, Mazdisna and Akbatan. In Mazdisna School, having Avesta as its Holy Book, examining and treating diseases and referring to physician were parts of the Zoroastrian teachings. The emergence of the term physician and separating superstition from medication which is attributed to Boqrat is also true of Iranians.

Akbatan School, which came into being about 100 years after Zoroaster, was founded by one of his students named Saena Poure Ahumstate. In the past, medicine was related to religious beliefs all over the world and likewise medical practice was within the responsibility of the religious scholars and Zoroastrian priests. Ase and Hista appeared to be a spiritual being capable of treating and curing diseases. In fact, the role of talisman, prayers, and invocation was quite important in the eyes of the ancient Iranians like other tribes.

Individual health and the hygiene of the boroughs, villages, and towns were included in their responsibilities and governors were charged with providing general health. Some typical examples of health in Zoroastrian School were washing up body and clothes as well as prevention from drinking water from others' glasses, touching corpse, and contaminating fire, earth, water and plants.

Some kinds of treatment were used by physicians in ancient Iran the most important of which were psychotherapy, herb therapy, and surgery or using knife. If not successful with herb therapy, the skillful physician could employ a knife to treat wounds, tumors, and also to cut body organs. For the first time cesarean was invented by Iranians and it was referred to as manual delivery.

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Survey of using medicinal herbs in Semirom

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Abstract

- Finding the most important medicinal herbs in Semirom.
- Determination of major diseases in Semirom.
- Determination of medicinal herb successes on diseases treatment.

This study was a measuremental study in 2002 based on filled questionnaire distributed among the Semirom people.

- 30 regional species of medicinal herbs have been found for remediation of diseases.
- More than 80 percent of Semirom people were Familiar with medicinal herbs.
- 55 percent of people were using medicinal herbs for their ailments.
- The most important medicinal herbs have been used in Semirom were as follows: *Achillea wilhelmsii*, *Antemiss nobilis*, *Thymus daenensis*, *Glycyrrhiza glabra*, *Ferulago stellata*, *Stachys inflata* and *Gundelia tournefortii*.

Increasing knowledge of Semirom people on the proper using of medicinal herbs and their side effects and also conservation of medicinal herbs of Semirom are the most important factors which must be considered.

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The present status of Medicinal Plants in Bangladesh

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Abstract

In an estimate, the international market of medicinal plants related to trade stood at 60 billion US Dollar per year. The demand for medicinal plants based raw materials are growing at an approximate rate of 10-15% per year internationally. Medicinal plant sector has traditionally occupied an important position in the socio-cultural, spiritual and medicinal arena of rural and tribal lives of Bangladesh. In recent years, the growing demand for herbal product has led to a quantum jumping in volume of plants materials trade within and across the country. Bangladesh there is no systematic cultivation process or conservation strategies about medicinal plants. The local people conserve traditional knowledge through their experience and practice, which is handed down orally without any documentation. This knowledge now under threat to extinction. This is a very alarming situation with regard to natural growth of medicinal plants in the wilderness in this country. In this scenario, the survey on "Traditional and industrial use and market Scenario of Medicinal plants in Bangladesh." has been conducted by the DEBTEC researchers at Chakbazar, Dhaka, Bangladesh. We have found that there is worth of 11 million US dollars medicinal plant market in Bangladesh, which have been imported but not in the name of medicinal plants rather in the name of spices and other products. This research aimed at documenting the 'Present Status and Market Scenario of Medicinal Plants' in Bangladesh. Our research finding shows that 84.1% of the respondent use medicinal plants in health care. 18.3% of the villagers use Kabirazi in the disease in medium category. 55.0% of our respondent's source of knowledge of using medicinal plant is family where 34.7% gained knowledge from neighbor. Only 14.3% of the respondents are involved with trading of medicinal plant. About 10.4% of the villagers are involved in cultivation, collection or business of medicinal plant. From the survey report it has been found that 46.6% industries are using above 60% of imported medicinal plants as their raw materials and 53.3% of the industries are using below 40%. The study revealed that 86.7% industries are importing Indian raw materials, 53.3% are importing the Pakistani one and very few of them are importing the raw materials from Nepal, Iran and Korea. According to the response of shop owners, the local raw materials of their products are mostly coming from 5 different areas of the country. Among those 90% are coming from Chittagong and again 76.6% from Tangail, 30% from Gazipur and another 30% from Khulna. In this scenario, appropriate steps must therefore be taken immediately in order to save this situation with regard to growth, conservation and supply of medicinal plants in the country. The best possible way of doing this is to bringing this more and more of these plants under planned cultivation. The cultivation of medicinal plants in Bangladesh will lead to the conservation and also protect the biodiversity. Ecological and biotic factors are

suitable in Bangladesh for the cultivation of medicinal plants. We have been successful to sensitize the policy makers. In Bangladesh there is no facilities and skilled manpower for the processing of MPs. Our research is now aiming to develop processing unit and to train the garden owner for skilled manpower to value addition of MP, which will create the income generating women in rural areas.

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Association between skin tattoos and Hepatitis B of 1/2000 privates at Adisorn Fort Hospital in Saraburi, Thailand

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Abstract

The objectives of this study were (1) to determine whether there is association between skin tattoos, Hepatitis-B and prisons, (2) to investigate risk behaviors for Hepatitis-B and (3) to describe characteristics of person who have tattoos.

Methods. This retrospective study consisted of a self-administered survey, and an ELISA blood test for viral hepatitis B. The study sample consisted of all 1/2001 privates at Adisorn Fort Hospital Saraburi who had tattoos (n1=46) and simple random sampling of another group of 46 volunteer privates who did not have tattoos.

All privates (N = 92) were male, age 22.88; 1.41 years, 67 (72.8%) had graduated from elementary and high school, 29 were positive for Hepatitis-B antibodies (31.5%), 41 (44.6%) had sex with prostitutes, 3 (3.3%) did not use condom, 4 (4.3%) shared razors, 1 (1.1%) shared needles, 25 (27.2%) had been in jail, 87 (94.6%) drank alcohol, 43 (46.7%) had used amphetamines. 20 (28.6%) had tattoos on 2 arms. 10 (14.3%) had tattoo on their back, 9 (19.6%) obtained their tattoos while in prison, 15 (32.6%) had a tattoo that was greater than 20% of the body's surface area. There was an association between skin tattoo and Hepatitis B (Chi Square, $p < .01$, OR: 15:9, 95%CI: 1.97-128.16), and an association between skin tattoo and having been in prison (Chi Square, $p < .01$, OR: 6.3, 95%CI: 2.1-18.8), There was no association between having been in jail and Hepatitis-B. Logistic regression was employed to find factors for Hepatitis-B. The variables that were associated with Hepatitis-B ($< .05$) were entered procedure to identify association with Hepatitis-B. Hit rate was 87.9, Pseudo R Square 0.464, Skin tattoos, a history of a family member with Hepatitis-B, and sharing needles increased the chance of getting Hepatitis-B.

There was a significantly association between skin tattoos and Hepatitis-B. Ministry of Public Health should control hand hygiene in tattoos business.

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Effect of essential oil and methanolic extract of *Myrtus communis* on *Trichomonas vaginalis*

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Abstract

Considering the high prevalence of *Trichomonas vaginalis* (TV) in women and the known side effects of metronidazol and giving importance to herbal drug therapy in order to reduce drug side effects in the recent decades; This study with the effect of myrtus in TV infection was done invitro condition.

This study has been carried out as double blind in test and control groups. Methanolic extraction was performed by percolation and essential oil prepared by hydrodistillation. The parasite was isolated from vagina and determined directly. Samples were collected from vaginal discharge identification was done through direct smear preparation parasite was added to the 5 test tubes containing drosse medium, metronidazole. Dimethyl sulfoxaide (DMSO) myrtus extraction with concentration of (0.1, 0.01 ml and essential oil with concentrations of (0.1, 0.01, 0.001-0.004, 0.0002, 0.0001) in order to determine the effect of these concentration within 72 hour

Finding of this study showed that, *Trichomonas* could be alived in Drosse medium for 72 hours. In presence of metronidazole for one hour and in Drosse medium for 6 hours. Also the results revealed that, methanolic extract at concentrations of 0.1 and 0.01 and essential oil at concentrations of 0.1, 0.01, 0.001 and 0.0004 are effective at the beginning of the inoculation and at concentrations of 0.0002 and 0.0001 after 2 and 9 hours respectively.

Considering the significant effect of essential oil and methanolic extract of *Myrtus* on trichomonas in in-vitro condition it is recommended that, the therapeutic effects the substance from this plant be studied in invivo condition and in case of having positive effect to be used as a drug.

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Effect of essential oils of *Artemisia aucheri* Boiss. *Zataria multiflora* Boiss, and *Myrtus communis* L. on *Trichomonas vaginalis*

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Abstract

Considering the high prevalence of *Trichomonas vaginalis* (TV) in women and the known side effects of metronidazol and giving importance to herbal drug therapy in order to reduce side effects in the recent decades, this study with the effect of essential oils of *Artemisia aucheri* Boiss., *Zataria multiflora* Boiss. And *Myrtus communis* L. in TV infection was done invitro condition

This study has been carried out as double blind in test and control groups. The essential oils prepared by hydrodistilation. The parasite was isolated from vagina and determined directly. Samples were collected from vaginal discharge identification was done through direct smear parasite was added to the 5 test tubes containing dorse medium, metronidazole dimethyl sulfoxaide (DMSO) and the essential oils with concentration of (0.1, 0.01, 0.001-0.004, 0.0002, 0.0001) in order to determine the effect of these concentration within 72 hour.

Finding in this study showed that, *Trichomonas* could be alived in dorse medium for 72 hours. In presence of metronidazol for one hour and in dorse medium for 6 hours. The results revealed that, essential oil of *Artemisia* at concentration of 0.1, 0.01, and 0.001 are effective at the beginning of the inoculation and at concentrations of 0.0004 and 0.0001 after 1 and 2 hours respectively. Essential oil of *Zataria* at concentration of 0.1, 0.01, 0.001 and 0.0004 are effective at the beginning of the inoculation and at concentrations of 0.0002 and 0.0001 after 2 and 4 hours respectively

Considering the significant effect of essential oils of *Artemisia*, *zataria* and *myrtus* on *Trichomonas* in in-vitro condition it is recommended that, the therapeutic effects the substance from this plant be studied in in-vitro condition and in case of having positive effect to be used as a drug.

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Failure of losing weight by acupuncture: Acupuncture failure or patient in compliance?

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Abstract

Losing weight by acupuncture is an old Chinese method. Nevertheless, many physician and even people don't believe to it. The main goal of this study is effectiveness of acupuncture on obesity.

This study includes some 40 patients aged 16-48 years, with male to female ratio 1 to 2, who fulfilled with obesity criteria of this study. On the base of Obesity syndrome of diagnosis the mains body points were Ren12, St25, St28, St34, St44, Sp6, Li11. Also the stomach and sometimes shenmen point in ear were also selected. Each course includes 30 sessions.

There was 5 Kg losing weight in 100% during 10 first sessions. After that the patients who continued regular sport and diets were able to progress continuing losing weight. None of them complete their 30 session. The maximum losing weight was 18 kg during 23 sessions. Some of patients mentioned eating is a fun for them and they would like to eat despite control of appetite by acupuncture which this prevented to losing weight.

The effectiveness of acupuncture in control of appetite was 100%. Also in 100% of them there was about 5 kg losing weight during 10 first sessions. But after 10th session that it needs to more cooperation (like sport and avoidance of eating) of patients to continue losing weight, if there is no any compliance the process will stop. Many patients and also physicians believes no effect of acupuncture on obesity but in real there is the un compliance of patients which results to acupuncture failure.

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The effects of foot massage on physiologic indicators in critically ill patients

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Abstract

The purpose of this research is to determine the effect of foot massage on physiologic indicators including pulse, respiration and mean arterial pressure. The hypothesis of this research is that foot massage decreases the patient's heart rate, respiratory rate and mean arterial pressure.

This research is a quasiexperimental study and a self-control clinical trial with repeated measures in which 46 patients with brain stroke that hospitalized in intensive care unit of Tajrish Shohada hospital are studied. Using instruments include a stethoscope and a sphygmomanometer that sphygmomanometer was calibrated before beginning the work.

Information was collected at 4 to 6 pm. For this purpose the physiologic indicators were controlled and after 10 minute, the samples were undergoing five minute stroke foot massage, and then in 10 and 30 minute intervals physiologic indicators were controlled again. Data were analyzed with repeated measures ANOVA statistical method.

Findings showed that pulse rate, respiratory rate and mean arterial pressure significantly decrease after five minute foot massage ($p < 0.001$). So that these indicators in 10 minute after foot massage were less than 10 minute before massage and in 30 minute after foot massage were less than 10 minute before and 10 minute after foot massage.

Findings show parasympathetic activity after foot massage that result in alteration in physiologic responses. Decreasing of heart rate, mean arterial pressure and respiratory rate may show that patients were more relaxed and their anxiety was decreased really. So we can decrease anxiety of patients in intensive care unit with using of a simple, low expense and non invasive method and can stabilize physiologic indicators and decrease effects of vital signs instability.

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The effect of superficial tactile- kinesthetic stimulation method on weight gain of low birth weight infant

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Abstract

The aim of the present study was to determine the effect of superficial tactile- kinesthetic stimulation method on weight gain of low birth weight infants

This is a quasi experimental, type of clinical trial study which was conducted on 54 low birth weight infants in Alzahra, Shahid Beheshti and Shariati hospitals was conducted by convenient sampling method. They were assigned to two groups of twenty-seven infants. One of the groups received superficial tactile- kinesthetic stimulation respectively. This group was compared with a control group receiving no stimulations. Criteria for inclusion in the study were: birth weight <2500 g, age<18 days, breast-feeding, the Iranian race, absence of congenital heart malformation, pulmonary diseases, neuromuscular disorders, respiratory distress, sepsis, maternal addiction, NPO or intravenous feeding only and blood exchange. Data were collected through observations, interviews and measuring weight by special scales of infants weighing (seco) with an accuracy of ± 10 grams. All measurements were taken before and after the completion of the study on the same equipment and by the same observer. Each infant in the treatment group received superficial tactile- kinesthetic stimulation for three 15-minute periods, 30-45 minutes after feeding in the morning, afternoon and evening for 10 consecutive days. The control infants were not given any specific stimulation but monitored for weight as in the treatment group. Weight of infants was measured three times: in the beginning of the study, 5 days and 10 days after it. To data analysis t-test and paired t-test were used to compare weight gain within and between groups.

The groups did not differ significantly on matched variables. Means of weight gain within groups, before and after of the study were statistical different. Also a significant difference was found between two groups. The treatment group was significantly gaining weight better than control group.

These findings show that superficial tactile- kinesthetic stimulation enhances weight gain in low birth weight infants. Field (1986), Scafidi (1996), Wheeden (1993), Ferber (2002), ... reported similar findings in their studies. Thus, tactile- kinesthetic stimulation with its effects on growth and development of low birth weight infants decreases infant's mortality and morbidity, the two most important indexes of health in the world.

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***Zataria multiflora* vaginal cream compared with Clotrimazole vaginal cream in the treatment of Candida vaginitis**

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Abstract

To determine the effect of *Zataria multiflora* vaginal cream in signs & symptoms of Candida vaginitis.

A randomized, double-blind clinical trial was performed comparing one applicator of *Zataria multiflora* vaginal cream with one applicator of Clotrimazole vaginal cream at night for a week.

61 women with candida vaginitis were enrolled. 30 of 62 women treated with *Zataria multiflora* vaginal cream and 31 of 62 women with Clotrimazole vaginal cream.

Zataria multiflora vaginal cream Significantly reduced all symptoms except vaginal irritation & burning (P<0.05).

The effects of *Zataria multiflora* vaginal cream on gynecologic signs was superior to Clotrimazole vaginal cream.

According to results of vaginal discharge microscopic Study; there was no significant difference between two cream. (P>0.05).

No difference in efficacy of two cream was noted, according to overall assessment by the clinicians. (P=0.071).

There was no significant adverse reactions in 2 groups.

A 7-day regimen of *Zataria multiflora* given as intravaginal cream was more effective than a 7-day regimen of Clotrimazole vaginal cream for treatment of Candida vaginitis.

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Effect of intercessory prayer on ferritin and hemoglobin in major thalassemia, Tehran, 2001-2002

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Abstract

Intercessory prayer (IP) is one of the newly re-cognized holistic treatment methods and its effectiveness has been documented on the management of different disease such as CHD, RA, and infertility. This study aims to determine its effect on ferritin and blood indices of thalassemic major patients.

In Iranian traditional medicine doctors were called Hakim. In addition to providing patients with conventional treatment, Hakim held or moved his hands over the head of their patients while he was praying for patient's health.

This before-after study was conducted on seven patients who were visited at an outpatient clinic and had received IP in addition to their routine treatment. SPSS version 10 was used for statistical analysis.

The trained physicians treated patients with Intercessory prayer free of charge. Lack of financial support prohibited research on larger sample size.

85.6% of patients were female and mean age was 14. In average, IP was performed 5.86 times for each patient as close-laying of hands and 6 times as remote IP. Before the study, the mean hemoglobin was 9.7 mg/dl, which reached 10.8 afterwards ($p=0.028$) (Wilcoxon signed ranks test). Mean serum ferritin was 2246.8 before the intervention which decreased to 1680.8 afterwards. Meanwhile, one of the patients had nearly halved the frequency and dose of desferal injections on her own. Ignoring this case, mean serum ferritin after intervention would decrease to 1476.5.

Blood transfusion interval doubled in four patients. Dizziness and fatigue, which were reported by two patients before intervention, disappeared afterwards. Three patients reported an improvement in their school performance after the study.

This study shows the effectiveness of Intercessory prayer in increasing hemoglobin and transfusion interval, decreasing ferritin and improving school performance in patients with major thalassemia. Blinded trials with larger sample sizes are suggested for more elaboration on this obvious effect.

One of the great masters in the medicine and healing art indicate that the beneficial effects of Intercessory prayer on healing are so convincing that it is not Justifiable to deprive patients.

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Efficacy of traditional medicine for the treatment of primary dysmenorrhea

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Abstract

Dysmenorrhoea, pain during menstruation, affects 40-95 per cent of menstruating women, and has been reported as the most common of all gynecologic complaints and the leading cause of absenteeism of women from work, school, and other activities. Common treatment for dysmenorrhoea is medical therapy such as nonsteroidal anti-inflammatories (NSAIDs) or oral contraceptive pills (OCPs) which both work by reducing myometrial activity (contractions of the uterus). The efficacy of conventional treatments such as nonsteroidals is considerable; however the failure rate is still often 20-25%. Many researchers are now seeking traditional and herbal alternatives to conventional medicine.

The aim of this study was to evaluate the effect of a traditional herbal drug (SGA) in the treatment of primary dysmenorrhea and to compare the effect of (SGA) vs. mefenamic acid for the treatment of primary dysmenorrhea.

161 single girl students, 17-30 years old from Isfahan Medical University Dormitory, who complained of dysmenorrhea, were enrolled in this randomized, placebo-controlled, clinical trial study. The SGA has been made of Refined Saffron, Anise and Celery Seed extracts highly purified, saffron is a conventional effective medicine in improving blood circulation, Anise and Celery Seed are able to relax smooth muscle cells and ease the muscle spasms that are the immediate cause of pain. Students were randomized to use placebo, SGA (500 mg), or 500 mg doses of Mefenemic acid. We treated patients with either SGA, Mefenemic acid or placebo TDS for three days during 3 menstrual cycles with a double-blind technique. Intensity of pain was reported by using a 10-point linear analog technique. Statistical analyses were performed by the independent sample t-test, paired t-test and qualitative measurement analysis method.

Students taking SGA with daily TDS doses of 500 mg, decreased the pain intensity ($p=0.001$) in a manner similar to mefenemic acid ($p=0.01$). SGA was found to be effective for sever pain relief in dysmenorrhea. There was no side effects and this confirms the report of Gill [1992] in the folk medicine that the rural people use the plant for dysmenorrhea and various pain.

We demonstrate that the SGA and Mefenemic acid both show adequate an analgesic effect in dysmenorrhea. However our results indicate that SGA was three time superior to placebo and met patients individual demands much better and could reduce sever dysmenorrhea.

Further research on SGA therapy is encouraged.

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The effect of intercessory prayer on quality of life of multiple sclerosis patients

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Abstract

Multiple sclerosis (MS) is one of the most common neurological disorders worldwide, afflicting more than one million people. This chronic and debilitating condition usually starts from young ages and does not have any curative treatments. Intercessory prayer is one of the methods of complementary medicine which have shown effectiveness in improving the health state in different conditions like rheumatoid arthritis or even infertility. We aim to study the effects of intercessory prayer on quality of life of MS patients. In Iranian traditional medicine doctors were called Hakim. In addition to providing patients with conventional treatment, Hakim held or moved his hands over the head of their patients while he was praying for patient's health.

This before-after study was performed on 12 MS patients admitted to a health care clinic. The patients were told about the method of intervention and filled in the consent form. Weekly sessions Hands-on prayer and remote intercessory prayer was performed for 8 weeks. Quality of life was measured before and after the trial with Multiple Sclerosis Quality of Life (MSQOL-54) instrument. Pain was one of the sub-scales of physical health composite

Wilcoxon signed ranks test through SPSS version 10 was used for non-parametric statistical analysis.

The trained physicians treated patients with Intercessory prayer free of charge. Lack of financial support prohibited research on larger sample size.

Each patient received 7 times of hands-on and 14 times of remote intercessory prayer. The patients showed a significant improvement in the area of physical health, energy, and physical health composite ($P=0.04$, $P=0.02$ and $P=0.02$ respectively). All of them also announced subjective improvement in their motivation and mood.

This study shows the effectiveness of intercessory prayer on some aspects of quality of life in the patients with disease as multiple sclerosis. Controlled studies with larger sample sizes and longer intervention and follow-up period are recommended to support this effect.

One of the great masters in the medicine and healing art indicate that the beneficial effects of Intercessory prayer on healing are so convincing that it is not justifiable to deprive patients.

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***Artemisia sieberi* lotion 5% compared with Clotrimazole lotion in the treatment of Tinea versicolor**

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Abstract

To determine the effect of *Artemisia sieberi* lotion in signs & symptoms of Tinea versicolor, a randomized, double - blind clinical trial was performed comparing topical application of *Artemisia sieberi* lotion with Clotrimazole topical lotion, twice daily for 2 week. 60 patients suffering from Tinea versicolor completed the study. 29 patients were treated with *Artemisia sieberi* lotion and 31 patients with Clotrimazole topical lotion.

In our study, the most common site of infection were back (23.3%) & chest (21.6%).

The clinical symptoms improved significantly at 2nd week (77.42%) and 2 week later (93.5%) in *Artemisia sieberi* group compared with Clotrimazole lotion (60.7% and 57.14%, respectively)

In microscopic study, negative direct smear observed in *Artemisia sieberi* group was 87.1% in 2nd week and 100% in 4th week (P=0.001) (69% vs 61.5% in Clotrimazole group, P=0.001). Treatment-related adverse events were not reported in 2 groups.

A twice-daily application of *Artemisia sieberi* lotion was effective in the treatment of Tinea versicolor.

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Efficacy of castor oil for induction and augmentation of labor

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Abstract

Castor oil was first noted to have oxytocic properties by ancient Egyptians. Derived from the castor plant *Ricinus communis*, castor oil may possess properties that are useful in post-term pregnancies

This study was performed at Khatam-Alanbia, hospital in shoushtar city in 1381. In this clinical trial 80 pregnant women, who had indication for induction of labor at term were randomly assigned to the study group (n=40), a single oral dose of castor oil, or assigned to a no treatment group (n=40). The castor oil was administered as a 60 ml dose diluted in orange juice. Inclusion criteria were singleton pregnancies with vertex presentation, intact membranes, and gestational age 40-42! week, Bishop Score of 4 or less, no evidence of regular uterine contractions and Gravity 1-2. Exclusion criteria were placenta previa, previous cesarean section or hysterectomy, and maternal medical complications.

All patients were observed for labor onset or 12 hours after castor oil administration. If labor was not occurred during this time, the patients were transferred to unit for oxytocine stimulation. The 2 groups of women did not differ in maternal age, parity, or gestational age.

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All patients were observed for labor onset or 12 hours after castor oil administration. If labor was not occurred during this time, the patients were transferred to unit for oxytocine stimulation. The 2 group of women did not differ in maternal age, parity, or gestational age.

Following the administration of castor oil, 25 of the 40 woman (62.5%) began active labor compared to 3 of the 40 woman (7.5%) receiving no treatment (p<0.001).

There was a significant difference in the induction-active phase interval between two groups. (p=0.004). There was a significant difference in the mean change in Bishop Score between two

groups ($p < 0.001$). There was a significant difference in the success of induction for labor rate between two groups. ($p = 0.007$).

Woman who receive castor oil have an increased likelihood of initiation of labor within 12 hours compared to woman who receive no treatment.

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Evaluation of acupressure effect on nausea and vomiting after cesarian section under spinal anesthesia in pregnant women referred to Razi Hospital

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Abstract

Nausea and vomiting are the common complication during and after spinal anesthesia antiemetic drugs reduce vomiting, but have some potential side effect. Acupressure is a nonaggressive and without drug effect method that some the researcher suggest that this method can be used as a approach to reduce nausea and vomiting.

Objective: This study is a clinical trial which is aimed to evaluate the effect of the acupressure on the nausea and vomiting during and after cesarean section under spinal and was conducted at razi hospital in ahwas 1379.

In this study 100 pregnant women (age 18-35), were randomly assigned into either an acupressure group (n=50) or a control group (n=50). The patients were at term pregnancy; single gestation; uterine and abdominal incision transversal; and spinal anesthetized with lidocaine 5% plus pethedin. Height, BMI, education, gravity, and gestational age, cause of cesarean section and nausea and vomiting in pregnancy were matched in two groups.

In acupressure group, at least 15 min before the induction of anesthesia, sea bands were placed on the Neiguan (p6) pointed hands. Control group did not receive any bands or antiemetic drugs.

All patient were assessed for incidence and severity; the incidence time of nausea and vomiting and antiemetic drug treatments during and two hours after cesarean section.

The results indicated that acupressure was not effective in decreasing nausea incidence during section ($p=0.11$) but acupressure reduced vomiting during operation, nausea and vomiting after operation, and severity of nausea and vomiting during and after operation ($p<0.05$). There was also a significant difference in administration antiemetic drugs between two groups ($p<0.05$) and acupressure group experienced a delayed nausea and vomiting ($p<0.05$).

Therefore acupressure as a effective nondrug method can be used for reduction of nausea and vomiting due to spinal anesthesia.

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The role of the traditional Iranian medicine as a treatment of chronic headache: a case series study

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Abstract

Headache is one of the most common medical complaints of humankind that occurs in all age groups and is the seventh leading reason for medical office visits. The most common cause of chronic headache is migraine that affects an estimated 10-15% of the population. However, many drugs are useful for treatment of headache, current conventional medications have many side effects. Therapeutic trials of medication do not provide diagnostic information due to high frequency of placebo responders (~30%). But traditional medicine of different nations and other complementary medicine have obtained promising results.

This case series study, will report five cases of chronic headache referred to the Mustafa Khomeini hospital in Tehran, responders to traditional drugs. The mean age of patients was 38 years old; all the patients were women with chronic migraine headache (according to the diagnostic criteria of international headache society-2003). They have been evaluated and after rule out of other causes of chronic headaches, conventional medications under the provision of physicians were prescribed for them. Treatment of these patients was based on the basic principles of T.I.M and the patients have been followed up for about 4 to 12 months.

Both the frequency and intensity of the headache attacks were greatly reduced and the quality of life of the patients was improved notably (according to pain scale and self-report of the patients). No adverse reaction of medications was seen.

This case series, as a pilot study, would like to confirm T.I.M as a kind of promising treatments for chronic migraine because of the beneficial effects, any or few side effects, availability for almost all patients and financial benefits, T.I.M can be taken into consideration by scientists to solve the problems prevailing in some disorders such as chronic headache however it is necessary to make more studies in this area for confirming the perfect benefits of such medications.

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The effect of herbal drugs on neonatal jaundice

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Abstract

Using herbal drugs is the common way for treatment of diseases in traditional and alternative medicine. These drugs have important role and strong cultural background among people in treatment of hyper-bilirubinemia. It is necessary to evaluate the effect of herbal drugs by scientific methods.

The goal of this study is evaluation the effect of common herbal drugs used in management of neonatal hyper-bilirubinemia with in vitro method.

Material & methods: In this study 0/5 cc of 5 common herbal drug (*Cichorium intybus*, *Fumaria parvi flora*, *Zizyphus jujuba*, *Alhagi pseudoalhagi* and Purgative manna) which are obtained by Hydrochloric instillation, then the level of bilirubin was checked by Diazo blank method.

Using herbal drugs is the common way for treatment of diseases in traditional and alternative medicine. These drugs have important role and strong cultural background among people in treatment of hyper-bilirubinemia. It is necessary to evaluate the effect of herbal drugs by scientific methods.

The goal of this study is evaluation the effect of common herbal drugs used in management of neonatal hyper-bilirubinemia with in vitro method.

The other herbal drugs may be decrease bilirubin level with another mechanism, for example by cathartic effect or activation of liver enzymes, but this study revealed the only drug with direct decreasing effect on bilirubin is *Cichorium intybus*.

Therefore the effective substance of *Cichorium intybus* must be separated and will used in in vivo method.

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The effect of wet cupping on serum lipid concentrations of clinically healthy young men: a randomized controlled trial

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Abstract

Objectives. Reduction in serum lipoproteins, especially LDL cholesterol, is a preventive approach against atherosclerosis. Bloodletting has been a recommended method to reduce serum lipoprotein concentrations. Present study was conducted to investigate the effects of wet cupping as a method of bloodletting on serum lipoproteins.

In a randomized controlled trial, 47 men, 18-25 years old, without chronic disease and the history of hyperlipidemia and anti-hyperlipidemic drug consumption, were admitted. Subjects were randomly assigned into control (n = 24) and treated (n = 23) groups. Treated group men were subjected to wet cupping while control group men remained untreated. The serum concentrations of lipids, collected from brachial vein were performed at the onset of wet cupping and then once a week for 3 weeks. Data were analysed using repeated measures ANOVA.

Results. Substantial decrease in LDL cholesterol ($P < 0.0001$) and LDL/HDL ratio ($P < 0.0001$) was found in the treated group compared to the control. There were no significant changes in serum triglyceride. Although there were no statistically significant variations in total cholesterol and HDL cholesterol ($P > 0.05$), 7 percent decrease in total cholesterol and 3 percent increase in HDL cholesterol may be clinically important.

Conclusion. Wet cupping may be an effective method of reducing LDL-cholesterol in men and therefore may have predictive effects against atherosclerosis.

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Comparison of traditional and modern dressings in healing surgical wounds

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Abstract

Up to two centuries ago patients were lucky to survive even minor surgical interventions without contracting life-endangering infections, and having to endure extreme distress. Such advances highlighted the importance of clean dressing and sterility. Lint, gauze and cotton rapidly replaced older types of dressings. Almost a century later another major advance occurred when Winter defined the phenomenon of moist wound healing. This work led to a new generation of dressing such as films, foams, hydrogels, hydrocolloids, alginates, enzymes, low-adherent.

Recently research showed that ideal dressing have characteristic that include of: Moist with exudate but not macerated, free from clinical infection and excessive slough, free from toxic chemical particles or fibres released from the dressing, an optimum temperature for healing to take place, disturbed by frequent or unnecessary derssing changes, an optimum PH value, conformability, cohesiveness, in both wet and dry situations, nonadherence, nontoxicity, absorbency, the degree to which bathing is permitted, where required, ease of use, availability in the community, demonstratable cost-effectiveness. Also recent studies indicated that modern dressing have more beneficial characteristic than to traditional. Also patients whose wounds had been derssed with a modern product as opposed to a conventional gauze dressing experienced significantly less pain, and had shorter average lengths of stay in hospital. In this paper we try to compare of traditional and modern dressing.

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Effects of acupressure on low back pain

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Abstract

Low Back Pain is a very common condition; as about 80% of people experience it throughout their life. Low Back Pain has negative effects on different aspects of the clients' lives. The objective of the research is conducted to evaluate the effect of acupressure on Low Back Pain and decline amount medication.

Ninety patients were selected by convenience sampling and then randomly divided into three groups:

Experimental, placebo and control. The study subjects were 36 male and 54 female, ranging in age 20-50 years. It is worth mentioning that three groups used Acetaminophen tablet (325 mg) for their pain relief. Data were collected by a structured questionnaire, pain assessment numerical (0-10) scale before and after any intervention.

The results of study indicated that acupressure, sham acupressure and medications could alleviate, Low Back Pain severity, but alleviation of pain was statically significant only in experimental group ($P < 0.0001$), Decline in the amount of sedative usage in experimental group was statistically significant ($P < 0.001$) and both of Hypothesis was accepted.

This study showed that acupressure is effective on pain relief and reduce the amount of sedative, and also is holistic and non-invasive (safe) treatment.

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The effect of acupuncture on the acute withdrawal symptoms from rapid opiate detoxification

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Abstract

To evaluate the effect of acupuncture on the severity of withdrawal reaction during rapid opiate detoxification (ROD), forty adult male subjects addicted to opioids and scheduled for ROD by naloxone were randomly divided into acupuncture and control groups. In the acupuncture group during three consecutive days immediately before induction of ROD, body acupuncture was performed while in the control group it was exempted. Severity of withdrawal reaction was assessed having recourse to Clinical Institute Narcotic Assessment (CINA) Score and compared between two groups.

After induction of ROD, CINA score raised significantly during the consecutive days in both groups compared with baseline values but the rise was significantly lower in acupuncture group.

The result of this study shows that body acupuncture reduces the severity of withdrawal symptoms associated with rapid opiate detoxification and it is recommended that this nonpharmacologic method of treatment should be included in ROD program.

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Complementary medicine use among Iranian breast cancer

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Abstract

A cross-sectional study was conducted to evaluate use of complementary medicine by cancer patients, in two comprehensive clinics, in Tehran, Iran. This paper reports the results for breast cancer patients.

Design: A specially designed questionnaire was completed for 177 breast cancer patients after informed consent was obtained. The Mean age of the participants was 47.61 years (SD= + 15.1) ranging from 25 to 80 years. Most were married (78.5%), housewife (91%). Of 177 patients 58 (33%) had used complementary medicines.

Users and non-users didn't differ significantly in educational level. Among users 50 patients (88%) indicated use of CMs after cancer diagnosis. The most commonly used CMs were spiritual healing 42 patients (72%), bioenergy 10% and homeopathy and herbal medicine were (8%). The main sources of information on CMs were religious believes (76%), previous informations (9%), and information obtained from relatives or friends (19%). Only 7% of users were informed by their physicians. Over 90% of patients satisfied with conventional therapies and the majority of users were satisfied with unconventional therapy 97% (36% fully satisfied and 61% relatively satisfied). Two-Thirds of users would suggest they like intake CMs by medical doctors.

The study findings suggest that the breast cancer patients use of CMs frequently after diagnosis and more like use CMs by their physician. Medical doctors should ask about their patient's use of CMs whenever they obtain medical history and they must know more about CMs to offer the patients better consultations and communications.

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The hematologic effects of cigarette smoking in healthy men volunteers

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Abstract

Substances existed in tobacco smoke including carcinogens, alkaloids (mainly nicotine), irritants of the respiratory tract and carbon monoxide are known responsible for a wide range of diseases and disorders. The current study was designed to investigate the hematologic effects of smoking.

This study is an observational, cross-sectional investigation in which the peripheral blood erythrocytic and leukocytic status as well as platelet count were studied in 51 healthy male cigarette-smoker (mean age: 31±5 yrs.) and in 35 male non-smoker (mean age: 28±2 yrs.) volunteers. Non of the volunteers in both groups had a history of medication 3 months prior to blood sampling. Smokers had at least a 5-year history of smoking and smoked 10-20 cigarettes per day. The number of peripheral blood leukocytes (WBC), erythrocytes (RBC) and thrombocytes (Plts) were counted in smoker and non-smoker groups. Also, hemoglobin (Hgb), hematocrit (Hct) and red blood cell indices (MCV, MCH and MCHC) were determined. Statistical analyses were carried out using the unpaired student t test.

In the smoker group, the amounts of WBC, RBC and Hgb were significantly higher compared to those of the non-smoker group ($p<0.05$). The differential leukocyte count showed difference between smokers and non-smokers, which was mainly attributable to increases in neutrophils and lymphocytes in the smokers ($p<0.05$). In contrast, the amounts of MCH and MCHC in the smoker group were significantly lower ($p<0.05$) compared to those of the non-smoker group. No difference was observed between the Plts count and MCV in two groups.

The differences detected between peripheral blood leukocytes and erythrocytes composition of smokers and non-smokers may be reflections of the gaseous and solid phases of cigarette smoke toxic product effects on the bone marrow as well as the adaptive, defensive and immunologic reactions of the body to long-term active smoking.

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The effect of garlic in prevention and control of cardiovascular disorders

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Abstract

The aim of this review was to evaluate the effect of different preparations of garlic with different methodologies on prevention and control of cardiovascular disorders.

Almost 30 articles and abstracts from 1990-2003 were searched through Medline.

Most of the studies between 1990-1993 showed the significant reduction of TC by garlic powder but a recent controlled study in 2000 found that consumption of 900 mg of dried garlic powder for 12 weeks by hypercholesterolemic subjects did not have any significant effect on TC, LDL-C and HDL-C. The evidences of some double-blinded randomized placebo-controlled or crossover interventions indicated that aged garlic extract (AGE) inhibits the oxidation of LDL, aggregation and adhesion of platelets in a dose-dependent manner. In one animal study using cultured rat hepatocyte it was found 44-87% inhibition of cholesterol synthesis by the water-extractable fraction (WEE) methanol-extractable fraction (MEF) and petroleum ether-extractable fraction of fresh garlic and liquid form of AGE. In recent study in 2003 AGE found to be an effective antioxidant as it scavenged superoxide ions and reduced lipid peroxides in cell free assays.

Standard formulations such as AGE has a role in preventing the development and progression of atherosclerotic disease but more controlled studies are warranted.

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The influence of traditional herbs on fasting blood sugar in diabetes

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Abstract

To study the traditional herbal influences on Fasting Blood Sugar (FBS) in controlling diabetes, in a retrospective study from 1975-2004 in all medical universities of Iran all the traditional herbal materials which have been known as a food or drug to influence on blood sugar were collected from Iranian Nutrition Abstract & Reviews and 7 held National Nutrition Congresses. Then the studies were classified on the physical characteristics and applied edible forms of each herb (Seeds, Fruits and Fruit juice, leaves and Vegetables). The level of its influences were recorded and compared with each other. The most and least level of effects were determined.

18 traditional herbs were expected to have effect on blood sugar. Among these herbs 3 were Seeds, 4 Fruits or Fruit juice, 7 leaves and 4 Vegetables. The most reducing effect on FBS in Seeds group were Fenugreek seed (*Trigonella*), Coriander seed, Fleawort, in Fruits and Fruit juice lime juice and Ribes oriented in Leaves Endive (*Cichorium*), Nettle (*Urtica*), Fumaria, walnut leave (*Juglan regia* leave) and Kalpoore and in Vegetables, Garlic and Carrot. The results were statistically significant ($p < 0/05$). Among all groups the Seeds showed significant reducing on blood sugar, while Fruit and Vegetable groups did not show a considerable effect and the Leaves group showed valuable effects.

It has been concluded that some traditional herbs have a considerable effect on FBS levels. Seeds particularly Fleawort, Fenugreek seed and Leaves Nettle, Endive, Kalpoore and walnut leaves are main edible herbs to control blood sugar in diabetic patients.

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Effect of aqueous ethanol extract of *Hypericum perforatum* on naloxane-precipitated opium withdrawal syndrome

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Abstract

The aqueous-ethanol extract of the *Hypericum perforatum* (Hp-Ext.) was studied for its possible effect on Naloxone (NLX)-precipitated Opium withdrawal physical signs in rats.

Purified Opium was used to induce dependence in rats using 8 days treatment schedule. The animals received Opium extract orally twice daily at 09:00 hrs and 19:00 hrs starting with initial dose of 80 mg/kg (equivalent to 8 mg/kg morphine) and increasing to 650 mg/kg (equivalent to 65 mg/kg morphine). Withdrawal syndrome was precipitated with NLX (0.25 mg/kg, s/c).

Animals were divided into three groups each containing nine rats. Group one served as a control and received opium + saline during opium dependence schedule and the remaining two groups were treatment group, one of which received Hp-Ext (20 mg/kg, p/o) one hour before NLX induced withdrawal and was administered opium + saline through out the dependence protocol and 2nd treated group received opium along with Hp-Ext doses through out the dependence protocol. The spasmolytic and calcium antagonist activities of the plant extract were studied using isolated tissue experiments suspended in the Krebs solution maintained at 37 °C and aerated with carbogen gas. The results showed a significant decrease in both, NLX-induced Opium withdrawal Jumps and Wet Dog Shakes behavior in chronically treated group (ANOVA; $P < 0.05$ followed by Dunnet post hoc analysis) but no significant effect was found in the acute treatment group. Interestingly, a significant effect was observed on diarrhea in acute treatment group (ANOVA; $p < 0.05$, followed by Student Newman Keuls test) but no such effect was seen in the chronically treated group. In a separate study, the plant extract inhibited K⁺-induced contractions in isolated rabbit jejunum and trachea preparations thus showing spasmolytic effect mediated through calcium antagonist activity.

In view of the reported fact that NLX-induced opioid withdrawal signs could be inhibited by calcium antagonists, our results indicate the possibility that the opioid withdrawal ameliorating effect of *H. perforatum* extract may be at least partly through calcium channel blockade.

Acknowledgements: We gratefully acknowledge the help and cooperation for the supply of Opium by Anti Narcotic Force (ANF) Peshawar Division. Financial support of University of Peshawar is also acknowledged.

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Comparison of acupuncture and baclofen treatment in patient with chronic tension myositis syndrom

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Abstract

Low back pain is one of the most prevailing illnesses, which is paramount importance among disabling illnesses. In spite of being various factors for low back pain the main course of it has not been recognized yet. In this study we investigated the effects of two methods on treating chronic tension myositis syndrom. That is one kind of low back muscles spasm due to high stress and psychic problems that does not respond to current drug treatments.

In this study we selected 50 subjects with chronic low back pain with credit clinical and para clinical documents based on being no other organic problem. They were 35 female and 15 male with average age of 34.5 and low and high ages of 21 and 48 years, the average weight was 58.5 kg. None of the woman was pregnant and the least time of low back pain was about 6 months. 25 persons of patients treated with baclofen and 25 others with acupuncture.

In the group cured with baclofen, in the last days of treatment, 11 subjects were with relative reduction of pain and 14 subjects were without it. Whereas in the patients treated with acupuncture, there were 22 subjects with the clear reduction of syndrom, 2 subjects with relative reduction, 1 subject was with no effect.

In conclusion according to the results obtained in this study acupuncture in curing chronic tension myositis syndrom caused by high stress was more effective and stable than baclofen.

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Comparison of the effect of Hirudo medicinals and Pyroxicam capsule on reduction of inflammation and pain in the primary stages of rheumatoid arthritis of knee

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Abstract

The rheumatoid arthritis is one of the most prevalent feeling incomidity and sever pain in the joint of the knee among individuals whom it is considered as the weakner illness, because of decisive being undistiguated its cause of beginning illness, severe pain, long trip, and its destructive role. The different treatments are considered to cease or retard this illness process but what it appears to be abvious is that all treatments primarely lead to slow down pain and inflammation of joints and tissues involved in this group of patients. To do this we also decided to compare the effect of hirudo medicinalis (H.M) and piroxicom capsule (between the NSAIDS drugs group) on minimum of pain and inflammation in the primary illness stages in the patients with the rheumatoid arthritis of the knee.

In this study, we selected 100 cases of patients with the rheumatoid artheritis of knee that they had the clinical and para clinical evidance indicating the knee sizure (one or both of them) to the rheumatoid arthritis. 44 male and 56 female are selected who had the average age 47, that the minimum and maximum of ages were 38 and 56. The average of weight was 60 kg. Non of them didnt have the apparent symptoms indicating the joint deformation and solidity and they were being traversing the primery illness stages and didnt have precedent of consuming drug in order to treat the mentioned illness since two mounth ago.50 person selected randomly for piroxicom treatment and second 50 body for H.M.

Four of cases among the group under piroxicom treatment had a complete reduction of pain and inflammation in the joint while 21 of them had a relative reduction and 25 of them stayed without effect but in the second group, 36 person of cases had complete reduction of pain and 10 of cases had relative reduction of pain and 4 of them steyed without effect due to H.M treatment.

The available materials in hirodu medisinalis saliva (leeches) will be mre effective and permanent in reduction of inflammatory pains due to reumatoid arthritis of knee (first stages) than treatment by the use of piroxicom capsule in certain perid in attention of the performed investigation.

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Effect of olive (*Olea europaea*) extract on levels of urea and uric acid in normal and streptozotocin-diabetic rats

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Abstract

Increasing the level of urea and uric acid is an associated complication of diabetes mellitus. Many spices and herbs are known to be hypoglycaemic. *Olea europaea* belonging to the family oleaceae is widely used in herbal medicine for the treatment of diabetes.

The present study was carried out to investigate the role of the alcoholic extract from leaves of olive on level of urea and uric acid in normal and streptozotocin-induced diabetic rats. Oral administrations of the alcoholic olive leave extract (0.1, 0.25, 0.5 g/kg body wt.) and glibenclamide (600 mg/ g/kg body wt.) for 14 days to normal and diabetic rats were carried out.

The levels of urea and uric acid were significantly increased in plasma of diabetic rats compared with the control group. After treatment of the extract, the levels of them were significantly decreased. The present data showed that the effect of “*Olea europaea*” was more effective than the observed with glibenclamide.

The present results showed that the herbal suspension exerted significantly effects on levels of plasma urea and uric acid, and consequently may alleviate damage caused by streptozotocin-induced diabetes.

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Ethnopharmacological evaluation of antispasmodic activity of essential oils from different plants

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Abstract

Achillea santolina, *Nepeta cataria* and *Salvia bucharica* are mainly known to possess antispasmodic use in traditional medicine. The essential oils from these plants were screened for their possible pharmacological activity with possible mode of action explored.

Volatile oil was extracted by steam distillation using standard procedure given in British Pharmacopoeia 2001. For pharmacological activity, rabbits were killed by cervical dislocation and jejunum was dissected out. About 2 cm pieces of rabbit jejunum were suspended separately in 10 ml isolated tissue baths containing Tyrode's solution maintained at 37°C and aerated with carbogen. The responses were recorded on the Harvard Student Oscillograph.

The oils, after solubilizing in different solvent systems according to their solubility, showed dose-dependent relaxation of spontaneous contractions of rabbit jejunum thus showing spasmolytic activity. The effect was dose-dependent, mediated at the dose range of 0.01-0.3 mg/ml. When tested on high K⁺ (80 mM)-induced contractions, the oils from all plants showed varying degree of relaxant effect observed at the dose range of 0.01-0.3 mg/ml.

This study indicates that the spasmolytic effect is mediated through the presence of calcium channel blocking constituents in these plants, and thus provides sound scientific base for some of the traditional uses of the plants.

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Effect of crushed garlic extract on wound healing in albino rats

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Abstract

Garlic extract is gaining increasing acceptance as an antimicrobial and anti-inflammatory agent and as a folk remedy on wound healing. We studied the effect of crushed garlic extract on wound healing in albino rats.

20 male albino rats had a linear 3 cm incision made over skin of back. The animals were randomly divided into two experimental groups, as control and treatment. Animals of control group received topical cold cream once a day from beginning of experiments to complete wound closure. Animals of treatment group treated topically by crushed garlic extract cream at the same time. For computing the percent of wound healing, the area of wound was measured at the beginning of experiments and 2, 4, 6, 8, 10, 12, 14 and 16 days after that.

There was statistically significant difference between treatment and control animals in some of days ($P < 0.05$).

We conclude that topically administration of crushed garlic extract has beneficial effects on the rate of wound closing an incisional wound model in rats.

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Effect of *Glycyrrhiza glabra* extract on wound tensile strength in albino rats

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Abstract

Glycyrrhiza glabra extract is gaining increasing acceptance as a folk remedy for treatment of wound. We studied the effect of its extract on wound tensile strength in albino rats.

20 male albino rats had a linear 3 cm incision made over skin of back. The animals were randomly divided into two experimental groups, as control and treatment. Animals of control group received topical cold cream once a day from day 0 (beginning of experiments) to day 30 (Two weeks after complete wound closure). Animals of treatment group treated topically by *Glycyrrhiza glabra* extract cream at the same time. Wound tensile strength was measured in all of animals at the end of experiments by a tensiometric method.

There was no statistically significant difference between the mean of tensile strength in treatment and control animals.

We conclude that topically administration of *Glycyrrhiza glabra* extract hasn't beneficial effects on tensile strength of wound healing in an incisional wound model in rats.

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Phytochemical and pharmacological studies on bark of *Symplocos racemosa* Roxb

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Abstract

Symplocos racemosa Roxb bark belongs to the family: Symplocaceae. In Ayurveda it is known as Lodhra. The bark was collected and dried for four days under sun and powdered. It was extracted with different solvents ethanol, methanol and ethyl acetate by soxhlet hot extraction process. Preliminary phytochemical analysis was carried out for different extracts. It was found that saponin glycosides and carbohydrate were present in the extracts. Thin layer chromatography studies were carried out using Methanol: Chloroform and Methanol: Ethyl acetate. Spraying reagents a) 5% Alcoholic sulphuric acid, b) 1% Vanillin in alcohol. Rf values were calculated for the different spots. Extracts were screened for antiinflammatory activity by carageenan induced rat paw oedema method by using ibuprofen as standard drug. The methonolic and ethyl acetate extract has shown significant anti-inflammatory activity when compared to that of control.

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Quantitative changes of mast cells following topical application of honey on third degree burns in rats

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Abstract

The purpose of present study was determination of number changes of mast cells in a honey treated experimental model of third degree burn.

A third degree burn was made in 24 adult female rats by direct contact of skin with boiling water for 8 seconds. Rats were divided randomly into four groups. Group 1: Burns of this group remained untreated (control group). Groups 2 and 3: Burns of these groups were received topical application of unboiled commercial honey one-time per day and twice daily. Group 4: Burns of this group were received topical application of nitrofurazone cream daily (routine treatment). Samples were extracted from 3 rats at day 15 and of another 3 rats at day 30. Samples were processed for light microscopy study and stained with toluidine blue. Mast cells were counted by a calibrated light microscope. Data were analyzed by Mann-Whitney U test.

Group 4 had highest number of mast cells at day 15 (30.43 ± 41.1) and at day 30 (31.52 ± 41.1). Control group had lowest number of mast cells at day 15 (11.9 ± 15.43). Group 2 had lowest number of mast cells at day 30 (17.19 ± 22.85).

It is concluded that topical application of honey on third degree burns didn't have significant effect on the number of mast cells in comparison with control and routine treatment groups.

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Acute toxicity of *Galega officinalis* alcoholic extract in wistar rats

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Abstract

Galega officinalis (galega, Goat`s rue, French lilac) is a traditional plant from south east Europe. There are various reports about pharmacological properties of *Galega officinalis* such as diuretic, platelet aggregation, anti-bacterial, lactogen and anti-diabetic effect. There are a few studies about possible toxicological effect of this plant. In the present study, we evaluated the acute toxicity of *Galega officinalis* in rats.

Wistar rats (20 male, 20 female) were divided at random into five-dose groups and were gavaged with 0, 0.5, 1, 2.5, 5 mg/kg of alcoholic extract (Single dose). The rats were observed for 14 days after treatment for clinical sings of toxicity and dead animal count also animals were weight weekly.

After 14 days all them survived and there was no significant difference in body weight in both sexes as compared to their respective control.

Present data suggest that LD50 of *Galega officinalis* is higher than 5 mg/kg. However, more studies are required for evaluation of *Galega officinalis* safety such as assessment of subchronic and chronic toxicity.

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Morphopathological study of effect of Licorice root extract on atherosclerosis process in coronary artery of male fed rabbit

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Abstract

Coronary artery disease due to atherosclerosis is one of the highest killers today. Cholesterol level reduction by diet or medication would lead to either halting, or decreasing atherosclerosis. We examined whether Licorice root extract can halt atherosclerosis.

Fifty male rabbits randomly were divided in five groups. They had gone under normal and high cholesterol (HC) diet for six weeks. One group received HC, one another had normal diet, and other three groups of HC diet were fed 1 g/kg/day, 0.1 g/kg/day and 0.01 g/kg/day of Licorice during this period. The rabbits were sacrificed; their main coronary arteries were taken and prepared for light and electron microscopic study.

Morphopathological study of coronary arteries showed that the group who had HC and 1 g/kg/day Licorice extract had a significant difference with others groups. In a way that atherogen reduction was quite obvious in these samples.

These results showed that Licorice root antioxidant components (same as Glabridin) can reduce atherogenic reaction in rabbit's coronary arteries.

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Hemodynamic effect of human and sheep atrial extract in anesthetized rats

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Abstract

The structure of atrial natriuretic peptide (ANP) and Brain natriuretic peptide (BNP) are similar and they are also similar in their actions e.g natriuresis and vasodilation. The previous studies have revealed the presence of ANP and BNP in sheep atrial extract, whereas ANP in human atrial. The aim of the present study is to investigate the comparison of hemodynamic effects of these two atrial extracts on blood pressure and hematocrit in anesthetized rat.

Human and sheep atrial extract were prepared using with saline and acid millieu method. Male rats were anesthetized by pentobarbital (60 mg/kg, i.p.). Femoral artery and jugular vein were cannulated for recording blood pressure and drug administration respectively. To measure the hematocrit, blood samples were collected from eye at the beginning and 45 minutes after extract administration.

The rat mean arterial blood pressure (MAP) was reduced by sheep atrial extracts ($p < 0.05$), whereas human atrial extract did not have any effect on MAP significantly. The hypotensive effect of sheep atrial extract was higher than the human extract ($p < 0.05$). Both extracts increased the rat hematocrit significantly ($P < 0.05$).

The obtained results indicate that different in hemodynamic effect of two extracts can be due to difference in ANP and BNP clearance, cardiac output fell and negative feedback inhibition.

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The effect of *Dendrostellera lessertii* on the cell membrane redistribution of alkaline phosphatase

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Abstract

Several mammalian enzymes are anchored to the outer surface of plasma membrane by a covalently attached glycosyl-phosphatidylinositol (GPI) structure. These include acetylcholinesterase, alkaline phosphatase and 5'-nucleotidase. Recently, it has been reported that these membrane enzymes can be solubilized into the serum by GPI-dependent PLD, under various medical disturbances such as cancer and/or by chemical/physical manipulation of the biological systems.

In this study, we investigated the effect (s) of *D. lessertii* crude extract and one of its purified active components, 3-hydrogenkwadaphnin on the extent of ALP membrane associations and PLD activation.

Our data clearly indicated that exposure of cancerous cell lines MCF-7, to one dose of plant crude extract or 3-hydrogenkwadaphnin (2 nM) for 24 hours enhanced the membrane ALP activity by almost 300% and reduced its activity in the cell medium by almost 40%. In addition, our data clearly indicated that the anticancer plant *D. lessertii* and its active component, 3-hydrogenkwadaphnin, are capable of not only enhancing the localization of ALP into its native site, but also enhancing the heat stability of the intestinal form of ALP.

These finding may assist us in developing new diagnostic tools for following cancer medical treatments. In this report, the details will be discussed.

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Effect of propolis on wound healing in albino rats

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Abstract

Propolis is a resinous, sticky substance that bees collect from conifer buds and use to repair cracks in their hives. Propolis was used in folk medicine as early as 300 BC as an anti-inflammatory drug and wound healing agent. We studied the effect of Propolis on wound healing in albino rats.

Twenty male albino rats had a linear 3 cm incision made over skin of back. The animals were randomly divided into two experimental groups, as control and treatment. Animals of the control group received topical cold cream once a day from beginning of experiments to complete wound closure. Animals of the treatment group were treated topically by Propolis cream at the same time. For computing the percent of wound healing, the area of wound was measured at the beginning of experiments and 2, 4, 6, 8, 10, 12, 14 and 16 days after that.

There was no statistically significant difference between treatment and control animals in most of days.

In spite of some beneficial effects of Propolis, it had no effect on the rate of wound closing in an incisional wound model in rats.

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Investigation the effects of extract of *Foeniculum vulgare* on anxiety in mice

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Abstract

Previous studies indicated that *Foeniculum vulgare* (FV) as a folk remedy plant that overgrows in the different parts of Iran and suggested that have antinociceptive activity and sedative. In this study, we investigated of anxiolytic effects in different doses of the extracts of FV.

In this study, fourty male mice (25-30 gr) were used in elevated plus maze model. Different doses of the extract of FV (100, 200 and 400 mg/kg IP) were injected to the separated groups of Three (test group) and saline were injected to the control group the same volume. At the first time for increasing activity, animals have put inside the black wall box for 5 min. Then animal transfer to the elevated plus maze and evaluation their anxiety reaction that including of number and percent of time spent in open arm.

Results indicated that injection of extract of FV reduced reaction anxiety in dose dependently manner and with compare to saline group in the test group animals had more number of entrances and spent more percent time in open arm ($P < 0.01$).

Finding above showed that the extract of FV plays an important role in fear and anxiety and hypnotic which is related to dose.

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The effects of hydro-alcoholic extract of *Coriandrum sativum* on anxiety reaction in Mice

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Abstract

In recently, many studies tried that fine medicinal plant that may be useful in treatment of psychological diseases. *Coriandrum sativum* (CS) overgrows in the different parts of Iran. In this study we investigated the effects of hydro-alcoholic extract of *Coriandrum sativum* on anxiety reaction in Mice.

In this study, fourty male mice (25-30 gr) in elevated plus maze model were used. Different doses of the extract of CS (100, 250 and 500 mg/kg IP) were injected to the separated groups of three (test group) and vehicle were injected to control group the same volum. At the first time for increasing activity animals have put inside the black wall box for 5 min. Then animal transfer to the elevated plus maze and evaluation their anxiety reaction that including of number intrances to open arm and percent of time spent in open arm.

Results indicated that injection of extract of CS in dose dependently reduced of reaction anxiety and with compare to control group in the test group animals have more number of entrances and spent more percent time in open arm ($P < 0.01$).

Finding above showed that the dycro-alcoholic extract of CS plays an important role in fear and anxiety and hypnotic which is related to dose.

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Optimization of extraction of *Silybum marianum* fruits, presentation of three formulations of its active chemicals and designing a dissolution test method for silymarin tablet

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Abstract

The milk thistle of commerce is a standardized preparation extracted from fruits of *Silybum marianum*, a plant native to the Mediterranean.

Silybum marianum extraction has been shown to be amazingly effective at protecting and repairing liver cells.

We studied quality of Silymarin distribution in *Silybum marianum* fruits and methods of increasing out put of extracting. We formulated the extract as oral drops and tablets.

Also inspite of absence of dissolution test in pharmacopea, we did it in order to compare tablet dosage form with standard preparation. (Legalon)

In order to study quality of Silymarin distribution in *Silybum marianum* fruits; Silymarin was isolated with preliminary de-fatting then was extracted with methanol and its content measured according to DAB10 method for assay. Since a large part of the oil present in pulp, was removed by separating husk from fruit mechanically in an invented method, using pressure, oven, blowing and milling. Then content of Silymarin in husk measured as DAB10 method.

Silymarin drops was fromulated with ethanol 40 in proportion of 1:5 and compared with standard fromulation, marindistel, for PH, density, dry residual and content of Silymarin. For tablet fromulation the extract was concentrated and used in silymarin tablet 35 mg, also silymarin tablet 70 mg was formulated using silymarin powder 80% from Nova-Linnea SA Company-Switzerland.

These products were compared with Legalon tablets for content of silymarin and dissolved percents.

A dissolution method was designed using apparatus II usp, medium consisted of 0.5% sodium lauryal sulfate, 900 ml, 100 rpm, 60 minute.

Results

1.Silymarin distribution:

Silymarin in fruits without de-fatting:	1.56%
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Silymarin in defeated fruits:	2.2%
Silymarin in husk:	3.5%
Silymarin in pulp:	0.85%

2. Drops fromulation

	PH	Density	Alcohol Degree	Dry Residual	Assay
Silymarin	5.7	0.94	41	2.4 g/100 ml	2.5 mg/ml
Marindistel	5.7	0.94	41	14 g/100 ml	2.2 mg/ml

3. Tablet fromulation

		% dissolved	Assay
Silymarin 35	100%	35 mg	
Silymarin 70	97%	70 mg	
Legalon 70	80%	70 mg	

Extraction from the husk of *silybum marianum* fruits instead of the whole fruits is easier than previously known methods and increases out put.

This research showed that our fromulations are comparabale with standard fromulations according to dissolution profile in tablets and other criteria in another product.

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Evaluation of Okra gum as a binder in tablet dosage forms

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Abstract

The type and the amount of binders decisively influence the characteristics of tablets prepared by wet granulation procedure. Commonly used binders like acacia, gelatin, starch and hydrolyzed starch have natural origin. The aim of this study was to evaluate the effectiveness of a new binder extracted from *Hibiscus esculentus* (*Okra gum*) in tableting.

binder *Hibiscus esculentus* gum was extracted from the pods of okra fruit by maceration in distilled water followed by filtration of viscous solution as well as precipitation of gum extract by using acetone. To evaluate the binder effectiveness, two models including a placebo formulation (lactose) and a drug formulation (acetaminophen, ibuprofen, and/or calcium acetate) were evaluated. Granules were prepared by different concentrations (0.5-6%) of *Okra gum* and tabletted using a Kilian single punch press. Cornstarch (12.5%) and P.V.P (22%) were employed as the standard binders for comparison. The physical properties of the granulates and those of the tablets including disintegration time and dissolution rate were studied. The dissolution studies of tablets were performed in order to evaluate the role of binder in drug release in comparison with common binders.

The properties of placebo granulates (bulk and tapped density, granule strength, flowability) as well as those of tablets (hardness, friability, disintegration time) were generally good. However the physical properties of ibuprofen and calcium acetate tablets containing *Okra gum* showed sufficient hardness (breaking load 55 N and 59.3 N), slow disintegration (completed after 35 min and 24 min) and low friability. The results showed that the drug release from tablets containing *Okra gum* significantly decreased ($p < 0.05$) in comparison with other binders.

Hibiscus esculentus gum produces some tablet formulations with good hardness and friability. However this binder prolongs the dissolution rate and hence may be good candidate for sustain release formulations.

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Herbal drug leaflets: are they in compliance with standards?

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Abstract

Leaflets inside pharmaceutical packages should include focal points about medicines being used by patients. The current study was designed to assess the compliance of information cited in herbal medicine leaflets with the standards released by the Ministry of Health and Medical Education of Iran (MHMEI).

Leaflets of commonly used herbal pharmaceutical products sold in pharmacies of Iran were collected. Standards for herbal drug leaflets were obtained from the MHMEI, Drug Administration Office. These standards are classified into two main groups of criteria: 1. information for health professionals and 2. information for patients. First group is summarized as 14 principles consisting of: official name of plant, therapeutic category, components, pharmacokinetics, pharmacological action (s), indication (s), contraindication (s), side effects, precaution and interactions, usage in pregnancy, usage in lactation, dosage, administration method and finally dosage form. This information should be in English. Information for patients included 3 main benchmarks of dose and administration method, side effects and storage instructions. This information should be in Persian. Data obtained from the leaflets was entered into the Excel spreadsheet and their compliance with the standard criteria was analyzed.

35 leaflets from 10 pharmaceutical companies were analyzed of which 23 (66.7%) had group 1 information in Persian and only 12 (34.3%) of them were in English. None of those written in English had the whole of the itemized standard information. None of them had pharmacokinetics data either. Overall, these 12 leaflets contained 123/168 (73.2%) of the criteria recommended by the MHMEI.

Regarding the information for patients, all leaflets included dose and usage method advice. However, both side effects and storage conditions were not quoted in 11/35 (31.4%) of them. 16/35 (45.7%) of the leaflets had all-inclusive information for patients complying with MHMEI standards. Overall, 83/105 (79.1%) of the principles recommended by the MHMEI were followed. Taking standards as points of reference which should be abided by pharmaceutical companies, results of this study discloses that a significant proportion of the herbal product leaflets need to be revised and re-written in accordance with the criteria recommended by the MHMEI. MHMEI should have a higher level of controlling on these products since they are easily available for public sale.

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Evaluation of sun protection activity of some medicinal herbs extracts

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Abstract

In vitro evaluation of sun protection activity of some medicinal herbs by SPF determination, to find out which herbal extracts have the best protection activity and can be used as sunscreen agent.

Sun rays are the most environmental harmful factor which affect skin, cause sun burn and photo aging. According to the previous studies the plant's flavonoids are suitable absorbents for UV rays. In this study twenty plants were selected. These plants have high percent of flavonoids and were: *Zizyphus vulgaris*, *Zizyphus spina-christii*, *Glycine max*, *Glycyrrhiza glabra*, *Matricaria recutita*, *Achillea wihelmsii*, *Ruta graveolens*, *Fumaria parviflora*, *Lawsonia inermis*, *Nymphaea alba*, *Hypericum perforatum*, *Lavandula officinalis*, *Viola tricolor*, *Centurea cyanus*, *Arnica montana*, *Melisa officinalis*, *Trigonella Foenum-graecum*, *Rosmarinus officinalis*, *Polygonum avicular*, *Crataegus monogyna*.

The plants were extracted totally by methanol, followed by purification of flavonoids with ethyl acetate. The UV spectrophotometer was used for screening the UV absorbance and transmittance spectrum of the extracts. The plants which have high and broad spectrum were selected. The transmittance percentage between 292.5-337.5 nm, by steps of 5 nm was determined by using solutions with three different concentrations. The SPF was determined in 2 mg/ml by plotting MPF against Ln C. In another procedure, gel bases contains the extracts were prepared. The SPF of the gels was determined by use of transpore tape method and transmittance reading between 290-400 nm. Finally the plants with the highest SPF values were recognized.

Plotting the transmittance percentage and the absorbance of the extracts against wavelength is a useful method to predict the sun protection activity of the samples. Hypericum, Viola and Arnica showed broad and high absorbance spectrums. By purification of flavonoids with ethyl acetate, the spectrums showed higher peaks.

Two In vitro methods were used to determine the SPF values. The higher SPF values also were observed in these three plants; 12.2, 25.6 and 12 respectively.

Results shows that some plant extracts can be used in sun protection preparations as potent UV absorbents with more safety and efficacy than chemicals and also with anti-inflammatory properties.

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Formulation and assessment of the efficacy of a herbal shampoo containing lavender oil

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Abstract

Today considerable consumer interest has risen towards the use of herbal hygienic and cosmetic products. Lavender oil is a well-known essence with uses in the treatment of alopecia, dandruff and scalp hair re-growth, as well as possessing antimicrobial, antiviral and antifungal effects. Hence, this study was undertaken to formulate and assess the efficacy of a new clear liquid hair shampoo containing this essence.

Initially, various concentrations of anionic, nonionic and amphoteric surfactants were examined to obtain a suitable and effective cleansing detergent base. Next, the necessary additives were incorporated into the detergent base to obtain the most desirable clear shampoo formulation. Finally, 0.5% lavender essence was included within the shampoo base and then the product underwent various physico-chemical tests as well as assessment of the efficacy and acceptability in twenty volunteers.

Following extensive formulation, eventually a clear liquid shampoo containing triethanolaminelauryl sulfate and sodium laurylether sulfate (anionic detergents), coconut diethanolamide (foam builder, stabilizer and hair softener), poloxamer 407 and alkyldimethylaminobetaine (nonionic and amphoteric co-detergents for reducing eye and skin irritation), sodium chloride (viscosity adjusting agent), methyl and propyl paraben (preservatives), BHA (antioxidant), glycerin (conditioner), EDTA (sequestrant) and lavender oil was prepared. This formulation had a clear appearance, pleasant odor, good spreadability, substantivity and skin feel, and a pH of 7.05 ± 0.07 . It produced copious amounts of a rich, stable, and durable foam, with desirable washability following use. This shampoo formulation supported no microbial or fungal growth, and remained stable under thermal, mechanical and accelerated stability tests (at 40°C for 6 months). Finally, the efficacy (especially against dandruff), applicability and acceptability of this shampoo was justified and approved by twenty volunteers.

The formulated lavender oil containing clear liquid shampoo appears to be a pleasant, acceptable and effective herbal product, particularly suitable against dandruff as well as hair and scalp hygiene.

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Anti-inflammatory effects of *Urtica pilulifera* l. seeds extracts in the rat

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Abstract

Urtica pilulifera l. seeds extracts (Decocted and Methanolic extracts) have anti-inflammatory effects.

In an experimental-interventional study, Anti-inflammatory effects of *Urtica pilulifera* l. (UPL), a Traditional Iranian Medicine (TIM) plant, were examined with formalin-induced hind paw edema model in the rat. Sodium salicylate (S.S) injection (300 mg/kg; IP) was used as a positive control group and was put to comparison with methanolic extract of UPL (20 mg/kg; IP), three doses of decocted extract of UPL (20, 40 and 80 mg/kg; IP) and a group of distilled water (6 ml/kg; IP). The differences were estimated by means of one-way ANOVA followed by LSD test for acute anti-inflammatory studies (One hour after formalin injection), and by means of Student's unpaired t-test for the chronic studies (Day one to day seven edema surveys).

In Acute anti-inflammatory studies, two doses of decocted UPL extract (40 mg/kg and 80 mg/kg) and S.S group had anti-inflammatory effects (p-value<0.05). In chronic anti-inflammatory studies results indicate that all UPL extract groups (20 mg/kg, 40 mg/kg and 80 mg/kg decocted extract groups and 20 mg/kg methanolic extract group) had anti-inflammatory effects (P-value<0.05) which had no significant difference with the S.S group.

Urtica pilulifera l. seeds had acute and chronic anti-inflammatory effects which its decocted extracts had significant effects in acute anti-inflammatory studies and both methanolic and decocted extracts had significant effects in chronic studies.

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Nitric oxide and the bioactivities

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Abstract

Nitric oxide (NO), previously known as Endothelium-Derived Relaxing Factor (EDRF) is involved in a wide range of physiological and pathophysiological mechanisms. It is synthesized endogenously by the enzymes Nitric Oxide Synthase (NOS) in specialized tissues from its precursor L-arginine, yielding L-citrulline as a byproduct. It is released by a family of isoenzymes, viz., the endothelial (eNOS), neuronal (nNOS) and macrophage or inducible (iNOS). The three isoforms play distinct roles in the regulation of vascular tone. eNOS and nNOS are normal constituents of healthy cells, while iNOS is not usually expressed in vascular cells and its expression is seen mainly in conditions of inflammation or infection leading to overproduction of NO which acts as a killer molecule causing lethal oxidative injury. The excessive and prolonged NO generation mediated by iNOS has attracted attention. NO plays major roles in many systems, viz., cardiovascular, respiratory, renal, CNS, gastro-intestinal, immune, and so on. Hypofunctioning of NO is involved in hypertension, vasospastic diseases, impotency, gastroparesis and hypoxic pulmonary ventilation. On the other hand, hyperfunctioning is involved in diabetes, neurodegenerative diseases, epilepsy, septic shock and cerebral malaria. Phytochemicals capable of modulating NO production would exhibit potential pharmacological activities. The lecture sheds light upon the crucial role of NO in the pharmacological activities demonstrated by certain traditional herbs and phytochemicals isolated thereof. Examples of phytochemicals will be presented to illustrate their bioactivities controlled by their effect on NO production. Extracts from Hops (*Humulus lupulus* L.), as well as chalcones, isolated thereof, significantly inhibited NO production by suppressing the expression of iNOS. Diterpenes from *Orthosiphon stamineus* (used for a wide range of diseases) displayed significant inhibitory activity on NO production in LPS-activated macrophage-like J744.1 cells. The aqueous extract of red rice stimulated vascular endothelial cells to produce and/or release NO leading to endothelium-dependent relaxation. The acidic polysaccharide isolated from the ethanol-insoluble and water-soluble fraction of *Panax ginseng* exhibited an immunomodulating activity mediated by the production of NO and increased output of iNOS. Other selected examples will be presented in the lecture.

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Cardioprotective potential of hydro-alcoholic extract of *Nepeta hindostana* (roth) on isoproterenol induced myocardial Infarction in rats

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Abstract

The present study evaluated cardioprotective effect of hydro-alcoholic extract of *Nepeta hindostana* (NH), commonly know as badranjbuyeh in Unani medicine, in the experimental model of isoproterenol (ISO) induced- myocardial infarction.

Wistar albino rats were divided in to four groups: sham control, ISO control, NH treatment group and ISO with NH treatment groups. NH was administered at doses of 25, 50 and 100 mg / 100 gm b w, orally for sixty days. On days 59th and 60th the rats of ISO control and NH treatment groups were administered ISO (20 mg / 100 mg b w) subcutaneously twice at an interval of 24 hrs. On 61 st the rats were sacrificed and serum was separated for biochemical parameters, creatinine phosphokinase (CPK), lactate dehydrogenase (LDH), aspartate transaminase (AST), alanine transaminase (ALT) and lipid peroxide level and heart was processed for histopathological studies.

The result suggests a promising cardioprotective role of NH treatment on isoproterenol-administered myocardial damage, which is probably mediated through NH antioxidant effects and contributing to prevention of acute myocardial infarction in rats.

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Effects of walnut on serum lipids and lipoproteins in girls

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Abstract

Opting an appropriate dietary regime has been and will be one of the simplest ways of providing health for and preventing disorders of human beings. Cardiovascular diseases-one of the most prevalent causes of morbidity and mortality worldwide-are in particular related to diet. Atherosclerosis, the most common pathogenic process of cardiovascular disease, is closely connected with food ingredients, specifically with the type of fat. Many experimental and clinical studies have shown the helpful effects of unsaturated vegetable oils, especially poly unsaturated fatty acids (PUFA) on serum lipids and lipoproteins. Walnut is a rich source of PUFA. The hypothesis in this research is that walnut ingestion could reduce the level of unfavorable serum lipids.

To determine the effect of walnut on serum lipids and lipoproteins, we carried the research out on 48 girl students having a mean age of 20.04, mean weight of 52.85 with no previously detected symptoms of any specific disease, they were divided into two groups; a case group of 25 and control group of 23. Before administering walnut, age, weight, serum lipids and diets of the population were thoroughly and analytically studied which illustrated no significant difference or variation. For 28 days, the case group ingested 40 grams of walnut a day along side with their regular diet, and at the same time, their serum levels of cholesterol, TG, LDL and HDL measured.

With the 28 days of walnut regime 40 grams daily the serum level of T.G and LDL was measured the result of which showed a statistically, significant drop ($P < 0.05$) in the serum parameters, howere level of HDL showed an infenitesimal rise and the level of total cholesterol was of minimal fall, statistically insignificant.

The results earned supported the hypothesis that adding walnut into dietary regime could decrease harmful serum lipids.

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The hypoglycemic effect of *Citrullus colocynthis* in normal rats

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Abstract

Infusions of *Citrullus colocynthis* Schrad. (Cucurbitaceae) fruits are traditionally used as antidiabetic medication in Mediterranean countries, but to our knowledge, no studies have been undertaken so far to determine the possible mechanisms involved in the antidiabetic properties of the fruit. The present study was designed to investigate whether these fruits possess hypoglycemic effects.

For this purpose, prepared suspension from C.C fruit (cucurbitaceae) was investigated in normal 12 h fasting rats. Blood glucose was determined before and 1, 2, 3, 4, 6, 8, 12, and 24 hours after single oral administration of prepared drug in the doses of 10, 30, 90 mg/kg. Single oral administration of prepared drug in the dose of 30 mg/kg, decreased level of BG by 18%, 24% at 4, 6 h, as compared with the control animals. Such effects of drug were not pronounced in the doses of 10 mg/kg, 90 mg/kg at 0, 4, 6, and 12 h.

In conclusion, our results show that *Citrullus colocynthis* fruit suspension have a hypoglycemic effect in the dose of 30 mg/kg, which could at least partially account for the antidiabetic activities of these fruits.

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Anti-inflammatory activity of *Asparagus racemosus* and its in-vitro cultures

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Abstract

To determine the pharmacological (Anti-inflammatory) potential of in-vitro cultures of *Asparagus racemosus*.

Anti-inflammatory activity of methanolic extracts of shoot, root their calli and genetically transformed shoot culture was performed using carrageenan induced rat paw edema method. The albino rats were treated orally with two dosage (500 or 1000 mg/kg body weight of rats) of drugs, one hour prior to injection of carrageenan (0.1 ml, 1%, i.p.) in right hind paw. The paw volume was measured just before and upto 3 hour after the injection of carrageenan.

Methanolic extract of root (1000 mg/kg body weight) showed best result (81.81% inhibition) followed by root callus extract.

The natural root extract showed significant anti-inflammatory activity whereas in cultured cells only root callus extract (500 mg/kg body weight) was found to give better result.

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Possible mechanisms of relaxant effect of *Portulaca oleraceae* on tracheal chains of guinea pig

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Abstract

Therapeutic effect of *Portulaca oleraceae* on respiratory diseases is indicated in Iranian ancient medical books. The relaxant effect of this plant also observed on smooth muscles in previous studies. Therefore, in the present study, the possible mechanism (s) for the relaxant effects of boiled and aqueous extracts of *Portulaca oleraceae* on tracheal chains of guinea pigs were examined.

The relaxant effects of 5 volumes of boiled (0.25, 0.5, 0.75, 1.0, and 1.25 ml of 5% W/V) and aqueous (0.125, 0.25, 0.375, 0.5, and 0.625 ml of 10% W/V) extracts were examined by their relaxant effects on pre-contracted tracheal chains of guinea pigs by 10 μ M methacholine on: 1) non incubated tissues, and 2) incubated tissues with propranolol and chlorpheniramine in comparison with the effects of saline, theophylline, (n=6 for both groups).

In groups 1 and 2 experiments both boiled and aqueous extracts and theophylline showed concentration dependent relaxant effect compared to that of saline ($p < 0.05$ to $p < 0.001$). There were no significant differences between relaxant effects of boiled and aqueous extracts with those of theophylline in group 1 experiments. The effects of extracts between group 1 and 2 were not statistically significant.

These results showed a potent relaxant effect of *Portulaca oleraceae* on tracheal chains of guinea pigs that was comparable and even greater than theophylline at concentration used. However, the stimulatory property of the plant on beta-adrenergic receptor or inhibitory on histamine (H1) receptor was not contribute on its relaxant effect.

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Ethnopharmacological survey and phytochemical screening of some medicinal plants of Algerian Sahara

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Abstract

The World Health Organisation (WHO) has recognised the potential utility of traditional remedies and strives to preserve the primary health care involving medicinal plants.

In various parts of Algeria, especially in the arid region, medicinal plants are widely used as an alternative to pharmaceutical drugs; the folk medicine represents a very important phenomenon in regional culture. Continuing our effort on the search of bioactives substances from medicinal plants of South-West Algeria, We report herein our results in this field.

The traditional uses of medicinal plants for the treatment of illnesses were selected based on the survey through interviews with local inhabitant, herbalist in the Souk and old women according to our previous works.

This study report the use of 114 species of folk drugs plants belonging to 53 botanical families in Algerian Sahara (West region). Each information was considered only after confirmation through three or more informants.

A phytochemical screening of 25 commonly occurring native plants was carried out, and in our knowledge, the selected species have not been previously reported in the literature. Thus, a qualitative analysis was performed for the presence of flavonoids, tannins, alkaloids, saponins, Cardenolids, terpenes and sterols.

We report information about the 114 medicinal plants used in Algerian Sahara, and a preliminary phytochemical constituent of some native species.

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A double-blind, placebo-controlled evaluation of *Vitex agnus castus* premenstrual syndrom

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Abstract

The objective of this study was to assess the effect of *Vitex agnus castus* (VACS) extract in the alleviation of the symptoms of premenstrual syndrome.

The study was designed as a double-blind, placebo controlled trial in two parallels groups (15 patients each). Treatment phase lasted 3 consequent menstrual cycles (2*30 drops/day=1.8 ml of VACS) or placebo. For assessment of the efficacy visual analogue scale was used. Altogether 20 patients were included into the stastiscal analysis (each 10 patients).

Treatment with Vitex a good relief of mental symptoms in 70% of cases compared to 30% for placebo. Seventy percent of women showed a greater than 50% improvement in score compared with only 40% taking placebo.

We encourage women who want to try alternative PMS therapies to consider *Vitex agnus*.

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Hypoglycaemic effects of chloroformic, ethanolic and hydroalcoholic extracts of *Trigonella foenum-graecum* L. seeds (fenugreek) on diabetic rats

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Abstract

Trigonella foenum-gracum L. (Fenugreek) (Leguminosae) is employed as an herbal medicine. Its seeds are known for their carminative, tonic and antidiabetic effects. In the present study, we investigated the hypoglycaemic activities of the hydroalcoholic, ethanolic and chloroformic extracts of the *Trigonella foenum-gracum* seeds in streptozotocin-diabetic rats using interperitoneall (i.p.) administration.

Animals were made diabetic by using streptozotocin (70 mg/kg, i.p.). The groups of normal and diabetic rats were administered by water and oil as a control groups and chloroformic, hydroalcoholic and ethanolic extracts of fenugreek. Blood samples were obtained from retro-orbital sinus before administration and 1.5, 3 and 5 hours after administrations. The serum glucose was measured by the enzymatic method of glucose oxidize.

The chloroformic extract of fenugreek produced hypoglycaemic effect 1.5 h, while hydroalcoholic and ethanolic extracts exhibited hypoglycaemic affect 3 h after administration. The hydroalcoholic and chloroformic extracts are under further investigation to determine the chemical structures of active components.

The presence of hypoglycaemic activity in hydroalcoholic and ethanolic extracts indicates the active compounds are polar in nature. Also, presence of hypoglycaemic activity in chloroformic extract may indicate that the other active compounds are none-polar in nature that act faster than compounds of hydroalcoholic and ethanolic extracts.

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Effect of *Matricaria chamomilla* extract on the electrically stimulation of ileum of guinea-pig in invitro model

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Abstract

Previous studies indicate that *Matricaria chamomilla* (MC), a folk remedy plant, is very useful in the treatment of spasmogenic bowel diseases but the way of its action is not clear. For this purpose, we studied the effect of MC extract on the electrically activation in Guinea-Pig ileum in an *invitro* model.

We used guinea pig in this study. After of kill, we brougght out a piece of ileum and fixed it in organ bath. After adaptation of the tissue, we used electrical stimulation and recorded the response by physiograph. Stimulation of guinea pig ileum at 0.1 Hz in normal Tyrode solution resulted in increase of electrical activity and twitch contractions of this muscle.

Results indicated that addition of MC during 0.1 Hz stimulation diminished and enhanced this electrical activity in a dose dependent manner. High concentration of MC significantly increased electrical stimulation of ileum ($P < 0.001$). However, lower of concentration of MC had an opposite effect ($P < 0.01$).

It is concluded that MC extract effectiveness on electrical stimulation in guinea pig ileum is dependent on dose. The mechanism of this effect is not clear. We suggest the involvement of colinergic system in ileum in the MC effect. Nevertheless, for elucidation of this manner and other system (s) that may be involved on this mechanism further reaserches are needed.

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Effect of garlic (*Allium sativum*) extract on levels of urea and uric acid in normal and streptozotocin-diabetic rats

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Abstract

The effects of garlic bulbs alcoholic extract (*Allium sativum*) on the level of urea and uric acid were investigated in both normal and streptozotocin-induced diabetic rats.

The normal and diabetic rats were administrated orally with the extract (100, 250, 500 mg/kg) or glibenclamide (600 mg/kg) for 14 days.

Oral administration of the garlic extract (0.25 and 0.5 g/kg body wt.) for 14 days exhibited a significant reduction in plasma levels of urea and uric acid in diabetic rats. The extract exhibited an insignificant effect in normal rats. The effects of the extract were more effective than that a common antidiabetic drug, glibenclamide.

It is concluded that this plant must be considered as excellent candidate for future studies on diabetes mellitus. In addition, further comprehensive pharmacological investigations, including experimental chronic studies, should be carried out.

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The effect of *Ginger consumption* on blood lipids of hypercholesterolemia patients

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Abstract

The objective of this research is to determine the effect of consumption of ginger on blood lipids of the hypercholesterolemia patients who referred to clinics at Shaheed Modarres Hospital at Tehran.

This double-blind clinical trial was conducted in 23 subjects with hypercholesterolemia by using before-after treatment method. The subjects referring to clinics at Shahid Modarres Hospital were selected non-randomly by convenience sampling. All patients were given ginger powder capsules 3 times a day with a total amount of 400 mg over four weeks. After one-week washout, placebo capsules were administered with similar condition. Blood samples were collected and examined at the beginning and at the end of fourth and ninth weeks of the study for serum total cholesterol, LDL cholesterol, HDL cholesterol and triglycerides after 12-14 hours at fasting. In addition, 24 hours recall questionnaire of food intake was completed at the beginning and at the end of the study.

Dietary consumption of ginger powder significantly increased total serum cholesterol and LDL cholesterol. There was no significant change in HDL, cholesterol, triglycerides, and LDL/HDL ratio. Although there was a continual decrease in TG/HDL ratio, it was not statistically significant.

In spite of the fact that consumption of ginger powder can reduce TG/HDL ratio as a significant risk factor in myocardial infarction, some findings are unexpected. Thus, further studies with different dose and duration of consumptions are recommended.

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Anti-nociceptive and anti-inflammatory activity of olive fruit extract

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Abstract

In Iranian traditional medicine, olive has been reported to have analgesic and anti-inflammatory effects. In the present study the anti-nociceptive and anti-inflammatory effects of olive fruit has been studied.

In this study the methanolic and aqueous extract of the fruit with HER (Herbal to Extract Ratio) of 4.96% and 4.84% has been used and analgesic effect of this extract has been compared with a non-steroid analgesic, sodium salicylate, effect.

Formalin test was employed in order to evaluate the effect of olive extract on chronic and acute pain. For evaluating the anti-inflammatory effect, the paw inflammation model was used. All experiments were performed on male Sprague-Dawley rats.

The aqueous extract of olive fruit at 450 mg/kg and 600 mg/kg doses and methanolic extract at 600 mg/kg doses had significant effect on chronic pain and none of these extracts had any effect on acute pain. The induced analgesia by extract of the fruit is not mediated by the opioid system, because naloxone did not reverse the analgesic effect of aqueous extract. Aqueous extract of olive fruit at 600 mg/kg dose has significant anti-inflammatory effect.

Comparing the analgesic activity of the aqueous extract of olive fruit with sodium salicylate showed that this extract is half as potent as sodium salicylate.

Olea europea fruit possesses anti-inflammatory and anti-nociceptive effects in the chronic pain. It's anti-nociceptive effects is comparable to those of salicylates. The anti-nociceptive effect obtained from the extract is not conducted via the opioid receptors and most probably, other mechanisms including the biosynthetic prostaglandins pathways are involved. Since the olive plant contains flavonoids, which have cyclooxygenase and lipoxygenase inhibitory effects, the anti-inflammatory effects of the extracts are suggested to be due to the presence of flavonoids.

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Rat vas deferens relaxation induced by *Vitis vinifera* leaf extract

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Abstract

The relaxatory effect of *Vitis vinifera* leaf extract on rat uterus has been reported and it was postulated that, the extract relaxed through the blockade of voltage dependent calcium channels. The extract also, relaxed rat aorta through NO and was dependent on the functional endothelium. In the present study, the effect of *Vitis vinifera* hydroalcoholic leaf extract (VHLE) on rat vas deferens precontracted by KCl and epinephrine was investigated.

Extract was prepared by maceration method using 70% alcohol and then the solvent was evaporated. The isolated vas deferens of adult Sprague-Dawley rat was suspended in an organ bath containing Tyrod's solution (30°C, pH 7.4) bubbled with air. Following 30 min period equilibrium, tissue was contracted by either epinephrine (EN, 2 µg/ml) or KCl (80 mM) under 1 g initial tension and tissue responses was recorded isometrically. VLHE was applied to the organ bath in a non-cumulative manner. Results are presented in mean±SEM of (g) contraction force or percentage of relaxation (%).

VHLE (1, 2, 4 and 8 mg/ml) reduced KCl-induced contractions significantly ($P<0.0001$) and dose dependently. Applying extract (1, 2, 4 mg/ml) prior adding EN, also reduced the vas deferens EN-induced contractions significantly ($P<0.0001$) and dose dependently. In Ca^{2+} -free Tyrod's solution, KCl-induced contraction occurred only after adding Ca^{2+} (1.77 mM). However, in the presence of extract (3 mg/ml), the vas deferens contractility reduced significantly ($P<0.05$). Applying neither NO synthase inhibitor (L-NAME, 300 µM, 15 min) nor β-adrenergic receptor antagonist (propranolol, 1 µM) to the organ bath prior evoked contractions by KCl did not modify the vas deferens relaxation induced by extract (3 mg/ml).

It seems that the *Vitis vinifera* leaf hydroalcoholic extract (VLHE) reduced vas deferens contractions through blockade of voltage dependent calcium channels. On the other hand, neither nitric oxide (NO) nor β-adrenergic receptors are involved in this relaxatory effect of VLHE.

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Relaxatory effect of *Vitis vinifera* leaf extract on rat isolated trachea

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Abstract

In previous studies, we have shown the relaxatory effect of grape leaf (*Vitis vinifera*) extract on isolated ileum, uterus and aorta. In rat aorta it was revealed that the NO and endothelium are involved in the relaxation induced by grape leaf extract. The aim of present study was to investigate the effect of the *Vitis vinifera* leaf hydroalcoholic extract (VLHE) on rat trachea precontracted by Ach and KCl.

Extract was prepared by maceration method using 70% alcohol for 72 hours and then, the solvent was evaporated. Male Sprague Dawley rats were anaesthetized by ketamine hydrochloride (50 mg/kg i.p.), the trachea (5-6 cartilage rings) were isolated and suspended in an organ bath containing Krebs's solution (37°C, pH 7.4) bubbled with oxygen. Following 60 min period equilibrium, tissue was contracted by either Ach (55 µM) or KCl (60 mM) under 1.5 g initial tension and tissue responses were recorded isometrically. After reaching to plateau, different concentrations of VLHE (0.5, 1, 2, 4 and 8 mg/ml) applied to the organ bath in a non-cumulative manner. Results are presented in mean±SEM of g contraction force.

Trachea precontracted by Ach or KCl were relaxed by VLHE significantly (P<0.0001). The relaxatory effect of VLHE was dose dependent and reversible since the contractility of the trachea was returned to normal after removing the extract from media. Applying neither NO synthase inhibitor (L-NAME 100 µM) nor β-adrenergic receptor antagonist (propranolol 1 µM) to the organ bath prior to evoked contractions by Ach and KCl did not modify the tracheal relaxation induced by extract (3 mg/ml).

It seems that the *Vitis vinifera* leaf hydroalcoholic extract reduced trachea contraction through blockade of voltage dependent calcium channels and also NOergic and adrenergic system are not involved in this inhibitory effect of VLHE.

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Ethnopharmacological basis for the use of *Valeriana wallichii* in hypermotility disorders of the gut

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Abstract

The ethanolic crude extract of *Valeriana wallichii* rhizome (VwR.Cr) was studied in vitro for its possible antispasmodic activity to rationalize some of its folkloric uses.

Segments of 2-3 cm long of rabbit jejunum preparations were mounted in Tyrode's solution and aerated with 95% oxygen in carbon dioxide. Isotonic responses were measured on Bioscience oscillograph.

VwR.Cr caused a dose-dependent (0.1-3.0 mg/mL) relaxation of spontaneous contractions of isolated rabbit jejunum. When tested against high K⁺ (80 mM) induced contraction, it was found devoid of any inhibitory effect up to the dose of 10.0 mg/mL, while it inhibited the low K⁺ (25 mM)-induced contractions at the dose range of 0.1-1.0 mg/mL. In the presence of glibenclamide (3 μM), the dose-response curves of low K⁺ (25 mM) were shifted to the right.

These data indicate that VwR.Cr exhibits spasmolytic activity mediated possibly through the opening of glibenclamide-sensitive K⁺ channels, which may explain the traditional use of the *Valeriana wallichii* in the gastrointestinal disorders, like diarrhea and spasmodic conditions.

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Presence of cholinomimetic and calcium channel blocking constituents in *Carthamus oxycantha*

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Abstract

The crude extract of *Carthamus oxycantha* (Co.Cr) was studied in vitro for its possible spasmogenic and spasmolytic activities.

Segments of isolated rabbit jejunum 2-3 cm long were mounted in Tyrode's solution and aerated with 95% oxygen in carbon dioxide. Isotonic responses were measured on Bioscience oscillograph. Isotonic responses were measured on Bioscience oscillograph.

Co.Cr caused dose-dependent (0.03-3.0 mg/mL) spasmogenic effect in spontaneously contracting rabbit jejunum, followed by relaxation at the next higher doses of 5.0-10.0 mg/mL. In the presence of atropine (0.03 μ M), spasmogenic effect was blocked and the relaxant effect was observed at lower doses (0.03-5.0 mg/mL). Co.Cr (1.0-10.0 mg/mL) produced relaxation of high K⁺ (80 mM)-induced contraction, suggestive of calcium channel blockade. The CCB effect was confirmed when Co.Cr in the atropinized tissue produced a dose-dependent shift in the Ca⁺⁺ dose-response curves to the right, similar to that of verapamil, a standard calcium channel blocker.

These data indicate that *Carthamus oxycantha* exhibits spasmogenic effect through cholinergic action and the spasmolytic effect through calcium channel blockade.

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The preventive role of aqueous extract of Coriander on optic nerve lesion in diabetic balb/c mice

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Abstract

Coriandrum sativum (coriander) has been documented as a traditional treatment of diabetes. On the base of this belief and as the studies about whether coriander reduces hyperglycemia in diabetic mice is little known are lacking, we decided to evaluate the effect of Aqueous Extract seed of Coriander on optic nerve in Balb/c Diabetic Mouse.

In the present study, the beta cells of pancreas of 16 balb/c mice were chemically destroyed by an injection of 130 mg/kg alloxan, and was divided into experimental and control groups. The experimental group was treated by 2.5 g/l crude aqueous extract seed of coriander in drinking water for 16 weeks and in the same manner control group received just drinking water. After administration of aqueous extract, the blood samples were drawn from the tail vein at beginning of every day. Blood glucose levels were determined and compared with glucose levels in control group. After 4 month, all mice were sacrificed and their optic nerves were removed and were embedded and serial sections were carried out. To study the neuronal changes, the Golgi method and morphometric analyses were used.

Our findings show that, the number of astrocytes in control group decreases significantly in contrast to experimental group. There is also a decrease of blood glucose level in experimental group (aqueous extract of coriander) in comparison to control group.

Although coriander has a significant decreasing effect on blood glucose level and prevents Optic nerve lesion, little is unknown about its mechanism of action. Thus, more investigations are need.

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The effect of 6-deoxyclitoriacetal from *Clitoria macrophylla* Wall. on rat liver mitochondrial respiration and ATPase activity

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Abstract

A Thai plant *Clitoria macrophylla* Wall. was claimed to possess some pharmacological activities. The phytochemical studies reported a rotenoid compound, 6-deoxyclitoriacetal, which exhibits the cytotoxic effect in several cell line experiments. This report was to study the effect of 6-deoxyclitoriacetal on rat liver mitochondria, which may associated to its cytotoxic phenomena.

Mitochondrial suspension was prepared from male Wistar rat liver by standard method (Hogeboom, 1955). The mitochondrial functions were demonstrated by measuring the oxygen consumption by standard polarographic method. The ATPase activity was measured from the amount of inorganic phosphate released from ATP hydrolysis. Protein content was measured by the method of Lowry et. al. (1951)

6-Deoxyclitoriacetal inhibited the oxygen consumption and oxidative phosphorylation with NAD^+ -linked substrates (glutamate+malate, α -ketoglutarate and α -hydroxybutyrate) but not with succinate. The compound also inhibited the NADH oxidation in osmotic-shocked mitochondria. These suggested that 6-deoxyclitoriacetal act as a mitochondrial electron transport inhibitor by inhibiting the complex I. In addition, 6-deoxyclitoriacetal activated the mitochondrial ATPase and led to decrease mitochondria ATP synthesis.

6-Deoxyclitioiacetal, a new rotenoid isolated from *Clitoria macrophylla* Wall. demonstrated its inhibitory effect on site I mitochondrial respiratory chain and stimulate APTase activity which may partly explain its cytotoxic effect.

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Analgesic effect of aqueous leaf extract of *Coriandrum sativum* in male streptozotocin-diabetic rats

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Abstract

Hyperalgesia is one of the symptoms of the diabetic neuropathy, is considered as a major clinical complaint in these patients, and could affect the quality of their living style. Since attenuation of hyperalgesia is very important, in the present study the possible analgesic effect of aqueous extract of coriander was investigated in male streptozotocin-diabetic rats using standard formalin test in both early (acute) and late (chronic) phases.

In this research study, male albino Wistar rats (250-350 g) were used. They were randomly divided into three groups, i.e. control, diabetic and extract-treated diabetic. For induction of diabetes, streptozotocin (60 mg/Kg) was administered i.p. After one month, formalin test was conducted.

The obtained findings demonstrated that pain sensation in the second interval (5-10 min) of the acute phase of the formalin test is higher ($P<0.001$) in comparison with control group, while a less significant difference was found out between control and extract-treated diabetic group ($P<0.05$). On the other hand, there was no significant difference

In addition, the present study showed that the acute formalin pain was augmented due to diabetes mellitus, and this hyperalgesic production was not changed by the aqueous leaf extract of *Coriandrum sativum*.

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Effect of *Beta vulgaris* extract on triglyceride and cholesterol in diabetic male rats

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Abstract

Beta vulgaris (Bv) was introduced as an antidiabetic herb in Iranian medicinal plant. Regarding to the effect of Bv on diabetes rats, we investigated that whether this plant could decrease the augmented triglyceride and cholesterol, which produce by diabetes. However, if this plant would be able to decrease the triglyceride and cholesterol, it can be introduced as a useful component for these patients.

In the present study four groups 1-Control 2-Diabetes 3-Control+Extract 4-Diabetes+Extract were chosen. The animals were made diabetic by injection of Streptozotocin (STZ) 60 mg/kg, i.p. The rats 30 days following STZ application became diabetic. For checking of diabetes, the animal's blood glucose was measured by special kit. In treatment group, the extract was applied to the animals in i.p one other day for 30 days. In the end of 30 days triglyceride and cholesterol from each group was measured by their special kits and compared with others.

In our experiment the augmented triglyceride and cholesterol due to diabetes were significantly decreased by application of Bv extract.

Beta vulgaris extract as an anti-diabetic component could decrease triglycerid and cholesterol in both control and diabetes groups markedly.

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Anti-inflammatory activity of aerial part of *Stachys byzanthina* C.Koch.

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Abstract

Anti-inflammatory effects of acetonetic and methanolic extracts of aerial parts of *Stachys byzanthina* were investigated in this study.

For assessment of anti-inflammatory properties, two well-characterized inflammatory models, formalin test and carrageenan-induced paw edema were used. In the former, the recording of the early phase started immediately after formalin injection and lasted for 10 min (0-10 min) and the late response was recorded 20 min after formalin injection and lasted for 10 min (20-30 min).

Interperitoneal injections of either acetonetic or methanolic extract of *S. byzanthina* (50, 100, 200 mg/kg), 30 min before formalin injection, had no effects against the first phase of the formalin-induced pain, but all three doses caused a significant blockade on the second phase (P<0.01). In the carrageenan-induced paw edema, both extracts revealed dose-related inhibitory effects on carrageenan-induced rat paw edema over the dose range 50-200 mg/kg. The anti-inflammatory activities of these extracts were similar to high dose of indomethacin (5 mg/kg) in both carrageenan-induced paw edema and formalin-induced paw licking.

The present data provide further evidence for an important role of extracts of *Stachys byzanthina* in the inhibition of pain and inflammatory processes.

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The effect of bitter almond oil on open skin wound healing: A tensiometrical study

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Abstract

This research was designed to study the effect of bitter almond oil on the healing of open skin wounds in rats.

Thirty female adult rats were randomly divided into experimental (n=15) and control (n=15) groups. Under general anesthesia and sterile conditions, one quadrangular (surface area=22 mm) full thickness skin wound was made on the dorsum of each rat. The day of surgery was considered as day zero. Wounds of experimental group were administered topical application of bitter almond oil daily from day zero. In the control group, wounds remained untreated. Tensile strength (g) of wounds of groups were examined after four days (n=5), seven days (n=5) and fifteen days (n=5). Surface area of wounds was measured at day 0, day 5 and day 8. Data were subjected to student t test.

Tensile strength and the rate of wound contraction of experimental group were higher significantly than control group at 3 above mentioned days (P=0.000 and P=0.000) respectively.

It is concluded that topical application of bitter almond oil accelerated wound healing process in rats.

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Comparison between hypoglycemic effects of *Cuminum cyminum* L. seeds and glibenclamide in diabetic rats

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Abstract

The purpose of this research was to compare the anti-hyperglycemic effect of *Cuminum cyminum* L. and glibenclamide, a known antidiabetic drug, in diabetic rats.

After collection and taxonomic identification of plant, alcoholic extract of seeds prepared suxhlet apparatus respectively. The animals were made diabetic by using streptozotocin (70 mg/kg, i.p.). The diabetic rats were administrated intraperitoneally with the extract or glibenclamide (600 mg/kg). Blood samples were obtained before administration and 1.5, 3 and 5 h after administration of extract and distilled water as a control groups. Then, the blood glucose was measured by the enzymatic method of glucose oxidize.

The results show that the antidiabetic effect of *Cuminum cyminum* was more effective than glibenclamide.

It is concluded that this plant must be considered as an excellent candidate for future studies on diabetes mellitus. In addition, further comprehensive pharmacological investigations, including experimental chronic studies, should be carried out.

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A histological study on the effects of aqueous extract of *Althea officinalis* on epithelial and submucosal mucocilliary system of rat trachea following inhalation of cigarette smoke

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Abstract

The contents of cigarette smoke (gaseous and solid phases) have been attributed to a variety of diseases in the respiratory and cardiovascular systems and have been associated with development of different types of cancers. In respiratory system, these compounds specially cause epithelial cell injury, and interfere with mucocilliary transport (MTC). Various parts of *Althea officinalis* (family Malvaceae), known as Khatmi (in Persian), are commonly used in Iranian traditional medicine in treatment of acute bronchitis, pneumonia etc. Thus, we conducted a study to evaluate the effectiveness of the aqueous extract of flower part of this plant in the treatment of epithelial and submucosal cell injuries produced following experimental exposure to cigarette smoke in an experimental setting in rat.

In this study the rats of either sexes were divided into 4 groups (n=5). First group (control group) received 1 ml normal saline every 12 hours. Second group was nebulized by 1 ml of *Althea* extract (100 mg/ml) twice daily. Third group was exposed to smoke of four cigarettes in a chamber for 1 hour. Fourth group was nebulized with 1 ml *Althea* extract as the second group but after the first dose of extract, animals were exposed to cigarette smoke for 1 hour. After 10 days, the animals were euthanized through IP injection of sodium thiopental (200 mg/kg) then trachea was removed and prepared for histological examination, using H&E and PAS staining.

The results of this study revealed that (1) the group receiving cigarette smoke had a significant increase in occurrence of metaplasia in comparison to other groups ($p < 0.01$). (2) In the microscopical examination for the number of tracheal epithelial cells, the group exposed to nebulized extract of *Althea officinalis* had a significant increase ($p < 0.01$) and the group receiving cigarette smoke had a significant decrease ($p < 0.05$) in comparison to the control group. (3) In the histological examination of tracheal submucosa, the group exposed to cigarette smoke had significant increase in the Reid Index, compared to the control group ($p < 0.05$). (4) There were no significant differences between extract treated group (fourth group) and the control group ($p > 0.05$).

The findings from this study demonstrated that cigarette smoke induced structural changes on epithelial cells which was manifested by a significant squamous metaplasia, a significant reduction in the number of goblet and other secretory cells, and a significant increase in the Reid Index.

We showed that *Althea officinalis* prevented the development of the cellular injuries that followed cigarette smoke and it not only prevented cigarette induced proliferative effects on the squamous cells of epithelial layer and reduced the Reid index significantly, but also increased the number of goblet cells and promoted MCT. This latter effect was inferred from the observed reduction of glycoprotein accumulation in the treated group. So, we may suggest the use of *Althea officinalis* extract to prevent or alleviate the toxic effects of cigarette smoke in the smokers.

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Investigation of anxiolytic effects of the aqueous extract of *Portulaca oleracea* in mice

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Abstract

Portulaca oleracea (PO) overgrows in the different parts of Iran. In previous studies, ethanolic extracts of PO showed antinociceptive activity, sedative in animal. This study was designed to evaluate anxiolytic effects in different doses of the aqueous decoction extracts of PO.

In this study, forty male mice (25-30 g) were used in elevated plus maze model. Different doses of the extract. (25, 50 and 75 mg/kg, IP) were injected to the separated groups of three (test group) and water (10 ml/kg, ip) were injected to the control group. At the first time for increasing activity, animals were placed inside the black wall box for 5 min. Then animals were transferred to the elevated plus maze for evaluation of their anxiety reaction including number and percentage of time spent in open arms.

Results indicated that injection of extract reduced anxiety reaction compared to saline group dose dependently. Test group animals have more number of entrances and spent more percent time in open arm ($P < 0.01$).

It is concluded that the aqueous extract of PO plays an important role in fear, anxiety and hypnosis which is dose related.

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Evaluation of acute and chronic anti-nociceptive and anti-inflammatory effects of apple cider vinegar

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Abstract

Apple Cider Vinegar (ACV) is a natural compound that is used mainly in numerous food preparations. During the last few decades, ACV has been used for various therapeutic purposes in different countries. One of its main applications by people in Iran and other countries has been as an oral traditional remedy to control chronic pain in arthritis. In this study, ACV's effects on acute and chronic pain and inflammation were evaluated in an experimental model.

Formalin test and sciatic nerve ligation in mice were used to study acute and chronic anti-nociceptive effects, respectively. Likewise, Xylene test in mice and cotton roll implantation in rats were used to study acute and chronic anti-inflammatory effects, respectively. ACV (standard preparation) was administered to animals orally by gavage or in drinking water (1%, 2%, or 4%).

In formalin and xylene tests, none of ACV doses caused significant effect on animal response to acute pain or inflammation, suggesting that ACV does not possess acute anti-nociceptive or anti-inflammatory effect. However, in sciatic nerve ligation ACV showed a significant and remarkable dose-dependent effect on chronic pain evaluated by hot plate test, which was comparable to the positive control. Furthermore, chronic inflammation caused by cotton roll implantation was controlled significantly by ACV consumption. This effect was dose and time dependent.

In this study, our results showed that ACV has considerable effect on controlling chronic pain and inflammation, confirming the value of ACV's traditional use by many patients in helping their chronic pain and inflammation. Although B complex vitamins have been found in ACV and they might be responsible for at least some of the observed effects (recently, it has been shown that B1 and B12 vitamins have some useful anti-nociceptive and anti-inflammatory effects), it would be important to find out exactly which ingredient (s) of ACV is (are) responsible for this observation. The mechanisms of these effects need to be addressed as well.

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Green tea extract formulation may promote wound healing

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Abstract

Wound repair is a natural reaction to injury, which results in restoration of tissue integrity. In this study the healing effect of green tea extract formulation was investigated on open skin wound of rabbit.

Active ingredients were extracted from green tea using water and glycerin (4:1) vehicle. Three cream formulations containing 2, 5 and 10% of green tea extract were prepared in the base. A full thickness wound was made on the left flank rabbits. Green tea creams were applied on wound area twice daily. Control groups were treated with the base only or phenytoin cream 1%. Healing was determined quantitatively as the reduction in wound area.

The wound healing profile of green tea treated groups were significantly better than non-treated groups. The best healing effect was observed in the green tea cream, which exert the lowest period for healing. Such effect was significantly different from phenytoin or the base. The quantity of tissue repairing was confirmed by histological examination.

Green tea formulation exhibited a considerable potency for wound healing ($P < 0.05$). This is probably due to acceleration of collagenation and proliferation phases of wound repair

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The study of effects of aqueous extracts of *Zataria multiflora* (ZM) and *Elaeagnus angostifolia* (EA) on the volume of stomach of mouse fetus

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Abstract

ZM is a plant used to remedy dyspepsias in pregnant women. EA is a plant used as a stomach and heart tonic, carminative and in remedy of skeletal and muscular ailments. In order to investigate the probable effects of this extracts on the fetus digestive system the current study was examined.

Twenty-eight pregnant balb/c mice (25-30 gr) were divided into control, sham and experimental groups (n=7). From 6th to 15th gestation days, food and water of mice were removed for about 3 hours. The experimental groups were gavaged with 200 mg/kg/day and 640 mg/kg/day aqueous extracts of ZM and EA in 0.5 ml distilled water, respectively. The sham group was gavaged with equal amount of distilled water. Pregnant mice were dissected in 16th day of pregnancy. Crown-Rump length (CRL) and weight of them were measured. Seven fetuses from different mothers were selected. Five μ m transverse serial sections with 75 μ m interval were prepared. The Cavalieri method was applied to estimate the volume of different parts of stomach. The significant differences ($p < 0.01$) between different volume of stomach were determined by Mann-Whitney U test and differences between Crown-Rump length and weight were applied by T-Test.

Statistical analysis showed no significant difference on volume of stomach by ZM but EA increased the volume of different parts of fetus stomach include volume of wall, epithelial layer, muscularis and serosa layer and total volume of stomach but no effect in the lumen of stomach. No significant difference was seen for weight and CRL in experimental group. The coefficient error of Cavalieri method for these samples was between 1-9%.

ZA is not a teratogenic agent and does not show side effect on fetus growth. The useful effect of this plant on digestive system may be on mucosal cell of stomach that secreted acid and enzyme or done by unknown mechanisms. EA is probably effective via change in function of embryonic growth factors, gene expressions or in unknown mechanisms that increase the volume of stomach of fetuses.

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The effect of crude aqueous extract of the *Allium sativum* on spermatogenesis in balb/C mice

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Abstract

Objective: Among herbal medicine, *Allium sativum* (garlic) has historically been used widely for the treatment of many disease such as hypertension, diabetes, tuberculosis, leprosy, constipation, parasitic infection, food poisoning, emmenagogue, abortion induction and many other disease. However, data about the particular effects of garlic such as activator of spermatogenesis has not been considered as much. In this study, we evaluated the effect of crude garlic extract on mouse spermatogenesis.

Eighteen mature male balb/c mice were divided into 2 groups (n=9). Group one received crude aqueous extract of the bulb of *Allium sativum* by gavages at doses of 4 mL/kg. Group two (control) received just the same volume of distilled water at the same manner of other group. At the end of exposure time, all groups were anesthetized, sacrificed and their testes were removed for histochemical studies using histological techniques.

By using of stereological methods, our data showed a significant free sex cell proliferation in experimental in contrast control group.

It seems that consumption and administration of *Allium sativum* can result in significant structural changes in male reproductive system and affect spermatogenesis. The mechanism, by which *Allium sativum* induces these effects, is unknown and remains to investigated.

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Assessment of extract of *Carum Carvi* on acute and chronic pain in mice in formalin test in mice

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Abstract

Few previous investigations show that *Carum Carvi* (CC) may control pain in both animal and human. The aim of this work was to assess the role of CC on acute and chronic pain in formalin test in mice.

In this study male albino mice (25-30 g) were used. CC (100 and 500 mg/kg) and saline were injected 30 min before formalin test. Indexes of signs were licking and foot elavation for assessment of acute pain (5 min) and chronic pain (15-40 min) after injection of formalin 5% (25 µl) in right paw.

Results indicated that CC has analgesic effect pain in both doses in acute and chronic phases and higher dose of the drug was more effective ($P < 0.01$).

Above findings show that CC can attenuate acute and chronic pain in formalin test. Further research is required to determine the mechanisms by which CC has an inhibitory effect on pain sensation.

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Antihyperlipidaemic and antihypercholesterolaemic effects of *Dorema aucheri*

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Abstract

Elevated serum cholesterol and triglyceride is well established as a risk factor development of arteriosclerosis and coronary heart disease. A number of clinical studies have shown that reducing elevated levels of serum cholesterol and triglyceride, by drugs or dietary intervention, could lead to reduction in the incidence of coronary-related deaths. The search for new drug with the potential to reduce or regulate serum cholesterol and triglyceride has received wide attention in recent years. *Dorema aucheri* is a wild species of Umbelliferous family that grows in spring season in some region of Iran and eaten as a greens by some people in south of Iran.

According to this fact that some species of Umbelliferous family have antihyperlipidaemic effects, in this study we evaluated the effects of *Dorema aucheri* on serum cholesterol and triglyceride in rats. Serum triglyceride and total cholesterol in rats with diet-induced hyperlipidaemia were determined after oral administration of water extract of *Dorema aucheri* leaves.

Administration of the extracts (0.5 g/ml) consecutively for 30 days reduced the triglyceride and total cholesterol level by almost 45 and 30% respectively.

Our investigation confirmed that *Dorema aucheri* has antihyperlipidaemic property and it is an effective agent for reducing triglyceride and cholesterol in peoples with hyperlipidaemic disease.

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Effect of *Coriandrum sativum* L. seeds on blood glucose in streptozotocin-induced diabetic rats

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Abstract

Diabetes mellitus is considered a serious endocrine syndrome. The prevalence of diabetes mellitus in the general population is greater than 6%. Many herbal medicines have been recommended for the treatment of diabetic.

The present study was carried out to investigate the effect of the alcoholic extract seeds of *Coriandrum sativum* L. on blood glucose in streptozotocin-induced diabetic rats.

The alcoholic extract was intraperitoneally administrated animals and the levels of blood glucose were measured before and 1.5, 3 and 5 h after extract administration.

The extract produced hypoglycemic effect in diabetic animals.

In conclusion, our results have shown that alcoholic extract of *Coriandrum sativum* seeds possess a hypoglycaemic effect on streptozotocin-induced hyperglycaemic rats intraperitoneally. Thus, the folk use of this plant may be validated by this study. However, controlled clinical trials will be required to confirm its hypoglycaemic action and general safety.

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Microscopical evaluation of protective effect of gazayagi (*Falcaria vulgaris*) extract on ethanol induced gastric ulcer in rat

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Abstract

Extract of gazyagi has protective effect against ethanol-induced gastric ulcer and it decreases microscopical ulcer index in rat.

At the last some years, treatment of peptic ulcer by medicinal herbs have been were very successful. Gazayagi (*Falcaria vulgaris*) is a member of Umbelliferae family. In the folk medicines of the west of country, this herb is used for healing of skin ulcer and peptic ulcer. This study is designed for microscopical evaluation of the protective effects of Gazayagi's extract on ethanol (50%) induced gastric ulcer in rat stomach. In the evaluation of protective effect 35 young white male rats (NMRI) were divided to five groups (5 rat/per group) which include two control groups [negative (distilled water 10 ml/kg) and positive (ranitidine 50 mg/kg)] and three test groups. In the test groups three doses of extract were administrated orally prior to induction of ulcer. Immediately, animals stomach were removed after they were sacrificed and the stomachs were fixed in neutral buffered formalin (10%) then glandular part of the stomachs were divided to four segments. Sections of 5-6 μ in diameter were prepared from paraffin blocks. The slides were stained by method of H&E and were evaluated by microscope then ulcer index (microscopically) and curative ratio was accounted. Data were subjected to one way ANOVA and followed by Dunnett t-tests for comparisons.

The results of microscopical protective effect indicated that ethanol extract of this herb with doses (50, 100, 150 mg/kg oral) significantly decreased the ulcer index ($P < 0.05$) and these doses had curative ratio of 53.52%, 69.48% and 83.82%, respectively.

On the basis of results of this study, it seems that this extract contains at least a herbal effective component with protective effects on the stomach lesions (e.g. flavenoids and tanens).

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The Study of *Hypericum perforatum* extract on wound healing in rabbit

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Abstract

Wound healing is a natural reaction to injury which results in restoration of tissue integrity. Repair consists of four phases: inflammation, re-epithelialization, angiogenesis, fibroblast recruitment and scarring. In this study the healing effect of *Hypericum perforatum* extract was investigated on open wound. Hydroalcoholic extract of *Hypericum P.* was prepared by maceration method.

Newzealand rabbits of either sexes weighting 1.6-2.5 kg were used. Method of Cross et al (1995) was used to perform excisional wound. Hairs of lower back and left flank of animal was carefully shaved and cleaned. Animal was held in standard crouching position. A template measuring 20×20 mm was placed on the skin and the outline traced using a fixed-tipped pen. Desired area was locally anesthetised with lidocaine 2%.

Full thickness wound was made by excising the skin using a scalped blade and forceps.

Every day the outline of each wound was traced by using a transparent plastic sheet. Treatment of wounds started from the first moments, twice daily. In order to minimize the errors, measurement was repeated three times. Then area of wounds was calculated by mm chart paper.

Wound of bland group were left untreated. Second group was treated with eucerin as placebo control, in third group phenytoin cream 1% was used as standard control and in other groups different concentration of hypericum extract 2%, 5%, and 10% w/w in eucerin base were administered twice daily.

Area of wound in the first day was considered as 100% and area of subsequent days were compared with initial day. Percentage of healing was calculated by subtracting the percentage of area from 100. Healing of eucerin and phenytoin groups lasted 21 and 158 day respectively. Healing in *Hypericum* cream of 2%, 5% and 10% groups lasted 14, 15 and 16 days respectively. Best results obtained with 2% extract.

The result of this study confirms that *Hypericum* cream 2% had the best wound healing effect even better than phenytoin cream, however the *Hypericum* Cream 5% & 10% had good and noticeable effect too.

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Studies on the antispasmodic and cardiovascular activities of methanolic crude extract of *Andropogon muricatus*. Nash

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Abstract

Andropogon muricatus Nash., has been used in the traditional medicine as an antispasmodic and in palpitation and this study was aimed to provide scientific basis for its use in gastrointestinal and cardiovascular disorders.

Approximately 2 cm long segments of rabbit jejunum and 2-3 mm wide aortic rings and strips of guinea-pig atria were incubated in normal Tyrod's and Krab's solutions at 37°C and 32°C respectively, aerated with carbogen. Responses were measured on Bioscience oscillograph. Blood pressure was recorded via the cannula inserted into the carotid artery in anesthetized rat coupled with Gross model 79 Polygraph.

In rabbit jejunum it caused inhibition of spontaneous and high K⁺ (80 mM)-induced contractions at 0.01-0.30 mg/mL in both cases, with EC₅₀ values of 0.08±0.03 and 0.086±0.03 mg/mL, respectively, which is suggestive of calcium channel blocking (CCB) activity. The CCB activity was confirmed when it shifted the Ca⁺⁺ dose-response curves to the right at similar dose range. In anaesthetized rats, it caused a fall in mean arterial blood pressure. The effect was dose-dependent; fall in BP was 14.5%±1.22%, 48.0%±2.10%, and 65.0%±0.73% at 10, 30 and 100 mg/Kg respectively. In isolated rabbit aorta it caused inhibition of phenylephrine (1 µM) and high K⁺ (80 mM) induced contractions at 0.1-1.0 and 0.01-0.30 mg/mL, with EC₅₀ values of 0.43±0.086 and 0.082±0.038 mg/mL respectively, indicative of nonspecific vasodilatation. In guinea-pig atria it suppressed the rate and force of spontaneous contractions at 0.03-5.0 and 0.10-5.0 mg/mL with EC₅₀ values of 1.38±0.19 and 1.32±0.19 mg/mL respectively.

These results suggest that the antispasmodic and cardiovascular effects of *Andropogon muricatus* are mediated through CCB, and this study provides mechanistic base for some of its traditional uses.

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Studies on the presence of spasmogenic and spasmolytic constituents in *Hibiscus rosasinensis* aerial parts

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Abstract

The aqueous-ethanolic extract of the *Hibiscus rosasinensis* aerial parts (Hr.Cr) was studied for the possible presence of spasmogenic and spasmolytic constituents to rationalize some of its traditional uses in gastrointestinal disorders.

Segments of isolated rabbit jejunum and guinea-pig ileum, 2-3 cm long were mounted separately in Tyrode's solution and aerated with 95% oxygen in carbon dioxide. Isotonic responses were measured on Bioscience oscillograph.

The Hr.Cr at the dose of 1-10 mg/ml caused a moderate degree of atropine sensitive spasmogenic effect in guinea-pig ileum. In rabbit jejunum, Hr.Cr caused a dose-dependent (0.03-0.3 mg/mL) weak stimulatory effect on spontaneous contractions, followed by relaxation at the higher doses (1-3 mg/ml). In the presence of atropine (0.03 μ M), the spasmogenic effect was abolished and the relaxant effect was obtained at lower doses (0.1-1.0 mg/ml) shifting the dose response curves to the left. The spasmolytic effect on the spontaneous and K⁺-induced contractions in atropinized preparations was mediated at the similar doses (0.03-1.0 mg/ml) suggestive of the involvement of calcium channel blocking (CCB) effect. The CCB effect was confirmed when pretreatment of the tissue with the Hr.Cr produced a dose-dependent shift in the Ca⁺⁺ dose-response curves to the right, similar to that of verapamil, a standard calcium channel blocker. Activity-directed fractionation revealed that the spasmolytic effect is separated in ethyl acetate and dichloromethane fractions, while spasmogenic activity in the petroleum ether fraction.

These data indicate that the crude extract of *Hibiscus rosasinensis* aerial parts contains spasmogenic and spasmolytic constituents mediating their effect through cholinergic and CCB actions respectively, which explains the traditional use of plant in the gastrointestinal disorders like constipation and diarrhea.

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Immunological effects of *Teucrium polium* on neutrophils

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Abstract

Teucrium polium, a medicinal plant that belongs to the family Labiatae is widely used in folk medicine as antidiabetic, antibacterial and anti-inflammatory agent. In this study, we evaluated the effect of *Teucrium polium* on the mouse polymorphonuclear neutrophils.

The animals were divided into five groups including four test and one control group, which orally received 50 and 100 mg/kg of aqueous and alcoholic extract of the plant and saline (in controls) respectively. Respiratory burst of the peritoneal neutrophils were evaluated after 10 days by chemiluminescence assay using PMA as stimulator of oxidative burst.

The results showed that alcoholic and aqueous extracts of the plant are effective in augmentation of neutrophil activity but this effect was statistically significant only for aqueous extract in 100 mg/kg.

Results of this study showed that the anti-inflammatory effect of the plant may result partly from improvement in neutrophils function.

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Effect of fenugreek (*Trigonella foenum graecum*) extract on insulin levels in normal and streptozotocin-diabetic rats

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Abstract

In traditional practice medicine, plants are used in many countries to control diabetes mellitus. The hypoglycaemic actions of these medicinal plants are being studied. Fenugreek (*Trigonella foenum graecum*) has been documented as a traditional treatment of diabetes.

In the present study, oral administration of alcoholic fenugreek extract (0.1, 0.25, 0.5 g/kg body wt.) and glibenclamide (600 mg/kg body wt.) on plasma insulin in normal and diabetic rats was measured. After collection and taxonomic identification of plant, alcoholic extract of fenugreek seeds prepared by Clevenger and Soxhlet apparatus respectively. The animals were made diabetic by using streptozotocin (60 mg/kg, i.p.). The normal and diabetic rats were administered orally with the extract (100, 250, 500 mg/kg) or glibenclamide (600 mg/kg) for 14 days. Blood samples were obtained and the plasma insulin was measured by using the radioimmuno assay kit.

The results showed that the extract increased level of plasma insulin significantly. A comparison was made between the action of the extract and a known antidiabetic drug, glibenclamide. The antidiabetic effect of the extract was more effective than that observed with glibenclamide.

The levels of insulin were significantly decreased in plasma of diabetic rats compared with the control group. After treatment of the extract, the levels of them were significantly increased. So, it can serve as a good adjuvant in the present armamentarium of diabetic drugs.

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Assessment of hydroalcoholic extract of *Carum Carvi* on acute pain in hot plate and tail flick in mice

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Abstract

Since use of antinociceptive chemical drugs for relief of pain has many side effects, medical plants seem very noticeable today. Previous findings indicate that *Carum Carvi* (CC) modulates pain in both animal and human. The present work investigated the effects of hydroalcoholic extract of CC on acute pain in Hot plate and Tail flick models.

Albino mice (20-30 g) were used for this study. Hydroalcoholic extract of CC seed was injected in doses of 100 and 500 mg/kg 30 min before test. Then the analgesic effect of the drug on acute pain was evaluated using Hot plate and Tail flick models.

Results indicated that CC has analgesic effect in both doses in both models and higher dose of the drug was more effective ($P < 0.01$).

The above findings show that CC can modulate acute pain. Further research is required to determine the mechanisms by which CC has an inhibitory effect on pain sensation.

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Assessment of hydroalcoholic extract of *Foeniculum vulgare* on acute pain in hot plate and tail flick in mice

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Abstract

Since use of antinociceptive chemical drugs for relief of pain have many side effects, medical plants seem very noticeable today. Previous findings indicate that *Foeniculum vulgare* (FV) modulates pain in both animal and human. The present work investigated the effects of Hydroalcoholic extract of FV on acute pain in Hot plate and Tail flick models.

Albino mice (20-30 gr) were used for this study. Hydroalcoholic extract of FV seed was injected in doses of 200 and 500 mg/kg 30 min before test. Then the analgesic effect of the drug on acute pain was evaluated using Hot plate and Tail flick models

Results indicated that FV has analgesic effect in both doses in both models ($P < 0.01$).

Finding above showed that FV can modulate acute pain. Further research is required to determine the mechanisms by which FV has an inhibitory effect on pain sensation.

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Behavioral effect of naloxone on anxiolytic-like effect of noscapine in bulb/c mice

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Abstract

The effect of naloxone, a non-selective opioid antagonist on some anxiolytic and analgesic drugs is reported. Noscapine is an opioid alkaloid with antitussive effect that cannot be antagonized by naloxone. The anxiolytic-like effect of noscapine has been shown in light-dark model and elevated plus maze. In this study the effect of naloxone on anxiolytic effect of noscapine in light-dark model was investigated

The measured parameters were time spent in light, time spent in dark, latency and number of tunnel transitions. Since locomotion could affect the behavioral pattern of the animals, locomotor activity was also measured.

Our data show that naloxone alone has no effect on number of tunnel transition, latency, time spent in light and time spent in dark. However, naloxone could antagonize the anxiolytic-like effect of noscapine (1, 1.5 mg/kg) and decrease time spent in light area.

The antagonistic effect of naloxone on anxiolytic-like effect of noscapine may be due to non-opioid receptors, involved in anxiety.

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Analgesic effects of aqueous extract of *Teucrium polium* L. in experimental models of pain in male rats

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Abstract

There are some reports in ancient medicinal literature that aqueous extracts of the leaves of *Teucrium polium* show analgesic effects.

This prompted us to investigate the analgesic effect of the leaves of the plant using Tail-Flick and Fomalin tests.

For this purpose, male NMRI rats weighing 220-260 g were used in all experiments.

The aqueous extract of the plant was injected intraperitoneally at doses of 150, 200 and 400 mg/kg. In this study, sodium salicylate (100 and 300 mg/kg) and distilled water were used as positive and negative controls, respectively. The results obtained were analyzed using one-way ANOVA and Tukey-Kramer tests.

Our data showed that intraperitoneal injection of aqueous extract of leaves of this plant (150, 200 and 400 mg/kg) produces significant analgesia in both phases of the formalin test ($P < 0.001$). Meanwhile, different doses of this plant did not produce any analgesic effect in tail-flick and hot plate tests.

On the other hand, sodium salicylate (100 and 300 mg/kg) induced analgesia in second phase of formalin test.

Aqueous leaf extract of *Teucrium polium* L. showed analgesic effects in both phases of formalin test. Therefore, it may be concluded that the extract produces anti-nociception through the central mechanisms. In this respect, flavonoid and steroid compounds of the plant may be involved in the anti-nociceptive effects in rats.

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The study of analgesic effect of licorice root extract in rat

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Abstract

Although non-steroidal anti-inflammatory drugs (NSAIDs) and opioid compounds are widely used in the relief of pain, they are not always useful due to their side effects. It seems necessary to search for newer analgesic compounds. Therefore, we decided to study the analgesic effects of this plant.

For extraction, percolation method was used and different weights of dried extract were dissolved in normal saline to produce desired concentration. The extract was injected intraperitoneally (mg/kg/2 ml). Two methods -the tail flick test for acute pain and the formalin test for chronic pain- were employed to measure pain

Different doses of licorice root extract induced analgesia in the second phase of formalin test but it did not analgesic effect in tail flick test.

The anti-nociceptive effect of licorice root extract is similar to non-steroidal anti-inflammatory drugs.

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Hypoglycaemic effect of *Phaseolus vulgaris* L. extract in streptozotocin-diabetic rats

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Abstract

In traditional practice medicinal plants are used in many countries to control diabetes mellitus. Plant drugs are frequently considered to be less toxic and more free from side effects than synthetic ones. *Phaseolus vulgaris* L. is a common vegetable used since ancient times. It has been shown to possess many medicinal properties.

In the present study, intraperitoneal administration of alcoholic extract of sheath on level of blood glucose in streptozotocin-induced diabetic rats was evaluated.

The results showed that the extract decreased blood glucose in diabetic animals significantly.

These results confirmed the use of *Phaseolus vulgaris* in folklore practice as an anti-diabetic plant.

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Iranian endemic phanerogams

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Abstract

To be extended as 1648000 Km², Iran has a widely varied climate; it is a habitat for very different plant species.

Nearly 190 families of vascular plants are found in this country, totally containing 8500- 9500 species, the endemic plants being relatively numerous.

Considering the inevitable importance of plants identification, a complete index of the endemic species of Phanerogams in Iran is listed. The previously mentioned species are ordered according to Cronquist's classification system. The volume number and the page number of the reliable references containing the under survey species monographs are mentioned below the species name.

According to the fact that plants are growing exclusive in Iran, it will be worthy to do research on them from different aspects and the results can be presented in the form of important international articles.

It should be mentioned that the present article refers to 1922 species belonging to 328 genera and 57 plant families, while all of them are belonging to Iranian Phanerogams.

It seems that this article gives a detailed and accurate list of endemic Phanerogams of Iran, which are known up to the end of the 20th century.

We hope that the researchers of our country on doing separate scientific studies on different aspects of the above-mentioned plants will open a new horizon to the advancement of our science, showing the value of such treasure to the world.

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Some important herbs of India Iranian origin in mother and child health care

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Abstract

Even in the 21st century when the modern medicine has made tremendous progress in development of promptly acting medicines and precise diagnostic equipments the total health is still a challenge to medical science. Since many decades the utility of the Traditional Medicines/Wholistic medicine throughout the world has been felt immensely and the World Health Organization have also accepted the viable use of various traditional medicinal like Chinese System of Medicine, Ayurveda, Unani System of medicine in health care. The Unani System of medicine which is a synthesis of Egyptian, Middle East, Iranian and Indian Medicines is providing the safe and effective treatment in the various common and complex diseases in this sub-continent since hundred of years.

Among the hundred of plants which are used in Unani System of Medicine number of them are commonly grow in Iran and are useful in the Health care of the mother and child e.g. Banafsha: *Viola odorata*. It is a perennial herb, grows commonly in Iran and India. Its flowers are effective in coryza, cough, reduce the congestion and inflammation of the respiratory tract and it is safe in children and even in pregnant mother. Kasni or Cichory Cichoruim Intybus: It is a perennial herb. It is a good diuretic, antipyretic, and analgesic and protects the liver from various indogenous and exogenous toxins. Aslussos or Liquorice or Sheren Byan (*Glycyrrhiza glabra* Linn): It is a perennial herb. Its rhizome is expectorant, demulcent, anti-inflammatory and is commonly used for cough and catarrhal infections. In recent studies, it has also found useful in peptic ulcers. Kaknaj or winter cherries (*Physalis al kekengi* linn): It is a perennial herb with creeping roots. Its fruits are good diuretic and useful in urinary tract infections in females and children. Carvy or Zera (*Carum carvi* Linn): A biennial herb of high altitude growth in Iran and India. It is aromatic, Carminative, good glactagogue and emmenagogue and is also useful in intermittent fevers and intestinal worms. Sad Kafi or Motha ! (*Cyperus rotundus* Linn): It is a perennial herb. Tuber roots are used. It is a good diaphoretic, diuretic, emmenagogue and glactagogue. It is also useful in anorexia and diarrhea in children.

Satar Farsi (*Zataria multiflore* Boiss): It is also a perennial herb, best quality is from Iran, its leaves are aromatic. This is a good carminative, anti-tussive, anti-flatulence and is also useful in hiccup and early stages of asthma. Fennel or Razyana (*Foeniculum vulgare*): It is also a perennial herb. Its fruits are carminative, anti-flatulence, and safe in children and pregnant mothers and may protect them from Iodine Deficiency as it contains iodine. Rehan or Shahasfarm (*Ocimum sanctum* Linn):

It is an aromatic perennial herb. Its leaves and seeds are used as antipyretic, anti-bacterial, carminative, cardio-tonic and expectorant. It is also good in cold and coryza. Ode Saleeb (*Paeonia officinalis* Linn or *Paeonia femina* Linn): It is a perennial herb. Its roots/Tuber is used. It is a good diuretic, emmenagogue, antispasmodic and sedative and nervine tonic. It is useful in Epilepsy, Hysteria and Paralysis etc. Injeer or Teen (*Ficus carica* Linn): This is commonly grown in Turkey, Middle East, Iran and Afghanistan etc. Its fruits are used which are tasty. This is good laxative, diuretic. Due to its good nutrient property it is useful for general debility of both women and children. Toodri (*Lepidium iperis* Linn): This is a perennial herb commonly grown in Iran and India. It is a good galactagogue and improves the general health during lactation. Satawar (*Asparagus racemosus* wild): The root/Tuber of the plant is used. It is a carminative and a good appetizer, useful in diarrhea and dysentery. It is a general tonic and acts as galactagogue.

The information on the above and other common plants will be discussed in detail at the time of presentation.

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Review on some Lamiaceae plants of Iranian traditional and folk medicines with anti-inflammatory activity

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Abstract

It is estimated that 80% of people in developing countries are completely dependent on traditional and folk medicines for their health care. The contribution of medicinal plants and natural products as drugs or as sources of useful drugs in medicine is unquestionable. There are many reports of medicinal plants capable of interfering with the pathophysiological processes in inflammation. Plant extracts may be considered a potential candidate for investigation as either lead structure of anti-inflammatory drugs. A lot of Iranian medicinal plants, traditionally used for thousands of years, are presenting a group of herbal products proposed for their anti-inflammatory activities. Evaluation of the pharmacological effects of herbal extracts can still be used as a logical research strategy for searching of new drugs.

In this paper four Iranian Lamiaceae plants (*Satureja hortensis* L., *Lavandula angustifolia* Mill., *Salvia hydrangea* DC. ex Benth. and *Stachys lavandulifolia* Vahl.) are viewed for their historical, phytochemical and pharmacological aspects. These plants have been widely used in foods and in Iranian folk medicine as anti-inflammatory remedies. The plants described contain anti-inflammatory principles that can explain their use in Iranian traditional medicine in the past as well as the present. In order to identify the plants with anti-inflammatory activity, they have been examined. For their evaluations, hydroalcoholic extracts, polyphenolic fractions and essential oils of the herbs were prepared with standard pharmacopoeial methods and their anti-inflammatory activities were studied in rats using carrageenan-induced paw oedema test.

Most of the herbal fractions inhibited carrageenan-induced paw oedema in low doses.

Results confirm the traditional uses of most of the plants for treatment of inflammatory conditions and calls for further investigations to determine the active chemical constituents. Flavonoids and monoterpenes probably have important roles in these pharmacological effects.

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Review on the ethnobotany of Labiatae family in Iran

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Abstract

Labiatae family with about 258 genera and 6970 species is one of the biggest families in the world. This family is well represented in Iran having about 45 genera and 363 species which of them 119 species and subspecies are endemic to Iran. Some big genera in Iran are *Nepeta* (75 species), *Stachys* (34), *Salvia* (56), *Phlomis* (17), *Thymus* (14). This family is well known for having aromatic essential oils, Terpens, Phenolic, Flavonoid and Iridoid compounds. Members of this family are of important sources of vegetables, culinary and medicinal plants especially in traditional medicine. Most of the Labiatae species are used in traditional and modern medicine. These species have different uses in different parts of the world. In Iran because of the high rate of endemism and species number, many species are used in traditional medicine which of them the most common species is *Ziziphora tenuior* L. most of the publications and documents about medicinal uses of these species are in Persian and scattered. In this paper, we tried to bring these scattered publications together to be accessible for the scientific society. In addition, some documentation from unpublished resources and ethnobotanical surveys are included.

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Determination of the exact scientific name of medicinal plants used in Iranian traditional medicine

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Abstract

With the development of the use of complementary medicine in the world and especially in Iran, more attention is increasingly being given to different schools of natural medicine. One of the schools in which hygiene and treatment is the centre of attention is that of the Iranian Traditional Medicine. Fortunately, this is being given considerable attention by Iranian authorities. One of the difficulties in exploiting Iranian traditional medicinal plants is the obsolescence of the names of the plants. In a study supported by the newly-established "Institute for the History of Medicine and Complementary Medicine", the botanico-medical information contained in very famous ancient medical manuscripts such as Seydaneh, The Canon, Aljameh, Tohfattolmomenin and Makhzannoladvieh and that contained in monographs published during the past three centuries by famous western botanists and physicians have been collated, resulting in determining the scientific (Latin) name of the Iranian traditional medicinal plants.

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Ethnobotanical study of Sabalan district in Ardabil province of Iran

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Abstract

The present study was carried out to assess and document ethnobotanical knowledge of the plants of Sabalan district in Ardabil Province, as the area has diverse flora and high ethnobotanical potential.

Medicinal plants of Sabalan were studied through collections of plant specimens and by interviewing local informants from several villages. For Each plant species the scientific and vernacular name, the parts of the plants used, specific medicinal uses, modes of preparation and administration and way of obtaining them were listed.

Plants were used mainly for diseases of digestive tract, infectious diseases of external tissues, respiratory disorders, cardiovascular diseases, urinary diseases and indigenouse people use some of them as food.

After clinical and experimental tests and phyochemical analysis, these Medicinal plants may be broadly applied in modern medicine.

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The seaweeds of Iran

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Abstract

The aim of this study was to identify seaweeds in the southern coasts of Iranian waters and providing an atlas.

The collecting and identification of seaweeds in the southern coasts of Iranian waters were carried out from October 2001 to September 2003. Data on vegetation were gathered in sub tidal and intertidal zones by seasonal and monthly sampling, respectively. Samples were transferred to the laboratory and fixed in 4% formalin. The marine algae were recognized according to some references. In addition, the herbarium sheet and algal photos were obtained. For final approval, the prepared samples were sent to scientific centers of America, China and Pakistan.

About 180 species have been collected in this research up to this time, 165 species have been identified and confirmed and the others are going to be identified. Among 165 identified species were 83 red algae species, 41 green algae species, 40 brown algae species and one blue-green alga species.

The most important identified seaweed families are Ulvaceae and Caulerpaceae belong to green algae, Sargassaceae belong to brown algae and Gracilariaceae, Gelidiaceae and Hypneaceae belong to red algae that have a lot to applications in feeding, industry and medical sciences fields.

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Survey on the treatment of the seed amount, the transplanting time of black zira (*Bunium persicum*) bulbs from nursery to field with the best cultivation pattern

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Abstract

The present study was conducted at Khorassan Agricultural Research Center in order to determine the amount of seeds in nursery and the best transplanting date for black zira (*Bunium persicum*) bulbs from nursery to field and to find out the best cultivation pattern in the field.

Treatments consisted of six seed rates (20, 60, 100, 180 and 220 kg/ha) which were sown on November 1996. Results revealed that 60 kg/ha was the best seed rate to produce bulbs of two years old with highest weight (1.98 g). In 1999, the experiment was laid out in factorial under a randomized complete block design. The factor of the cultivation patterns was included of three levels as square, lozenge and rectangle. The transplanting date of two years old black zira bulbs from nursery to field was conducted in three seasons (summer, fall and winter) in the form of RCBD. The distance between rows was considered in both the rectangular pattern and lozenge 25 cm and in the square pattern 12.24 cm.

The results showed that the best transplanting date of the black zira bulbs was summer due to bulb dormancy and considering optimum yield and biological yield.

Medicinal plants are a valuable natural resource and regarded as potentially safe drugs. They have been playing an important role in alleviating human sufferings by contributing herbal medicines in the primary health care systems of rural and remote hilly areas where the of population depends on folklore and traditional system of medicines. In this research, I try to find out some agronomic character to produce black zira in the fields and protect rangelands.

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Effect of N- fertilizer and plant density on growth, development, herb yield and active substance of feverfew (*Tanacetum parthenium* Cv.Zardband) medicinal plant

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Abstract

The objective of this study was to investigate the effect of two N-fertilizer rates and plant density on herb yield and active substance of feverfew (*Tanacetum parthenium* Cv.Zardband).

The experiment was performed in a factorial trial, RCB design. Three rates of N-fertilizer (0.75 and 150 kg/ha) and plant densities of 10 and 20 cm were applied as treatments, with three replications.

After performing soil analysis of experimental site seedlings were transferred from nursery to the main plots.

Plants were harvested 5 cm from ground, when they reached 60% full-bloom, then air dried in laboratory. Dried samples constituents were characterized and quantified by means of water distillation extraction and GC/MS.

The results of Duncan multiple range test showed that, there is a very significant ($P < 0.01$) difference between different levels of N-fertilizer and plant density for all factors. Each of 150 kg per ha of N-fertilizer and 20 cm space between plants separately resulted in higher plant fresh weight, plant dry weight and volume of essential oil, but the mutual effect of these two treatments was not significant. Also by applying these treatments, we obtained higher stem length, more stems and flowers per plants comparing with other treatments.

According to the comparison of means for essential oil constituents, 150 kg per ha of N-fertilizer and 10 cm space between plants resulted in a higher amount of α -pinene, camphen, p-cymen, limonene, β -pinene and α -thujene.

From the above results, we can conclude that by increasing N-fertilizer rate, more nutrition is provided for assimilation and by increasing plant density, more competition will happen, which both result in higher fresh and dry weigh and consequently higher amount of essential oil. For this trial and similar conditions 150 kg per ha N-fertilizer and 10 cm space between is recommended.

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Effect of pruning on growth, development, seed yield and active substances of Pumpkin (*Cucurbita pepo* con var. *pepo* var. *styriaca*)

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Abstract

The objective of this study was to investigate the effect of pruning in different developmental stages on growth, development, seed yield and active substances of medicinal pumpkin (these active substances are used for remedy the Benign Prostatic Hyperplasia (BPH)).

The experiment was performed in a RCB design. Five pruning treatments in different developmental stages (no pruning, after 3-5 nodes, after 6-8 nodes, after emergence of first flower, after emergence of 8th to 10th flowers) were applied. After performing soil analysis of experimental site, we made 3 furrows, 2 m apart from each other, then the seeds were sown on 50 cm spaces on the rows (4 seeds in each hole), in April 26th, 2003.

After the vines reached the mentioned stages, pruning treatments were applied by cutting the main stem. When the fruit matured (became yellow), were harvested and carried to the laboratory, the fresh weight of fruits was measured, then the seeds were cut out, counted and their fresh weight was measured. The seeds were air dried and their dry weight was calculated. The oil was extracted from dried seeds by maceration method and the extract constituents were quantified by means of GC.

Pruning in 6-8 nodes stage resulted in higher fruit number, total fruit fresh weight, total seeds dry weight and number of seeds, comparing with other treatments. Control treatment, resulted in a higher weight of 1000 seeds. However, seed fresh weight and seed oil content, was not affected by pruning and did not show any significant difference between treatments. Furthermore applying pruning treatment in 6-8 nodes stage showed a considerable increase in the content of fatty acids including: palmitic, stearic, oleic, and linolenic.

Although pruning resulted in reducing fruit size, it affected the quality and quantity of final product and increased the active substances.

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Application of techniques in collection and harvesting of herbal medicine

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Abstract

Interest in traditional medicine and in particular herbal medicine has increased in both developed and developing countries over the past two decades. Some reported adverse events following the use of certain herbal medicines have been associated with a variety of possible explanations, including the inadvertent use of the wrong plant species, adulteration with undeclared other medicines. The safety and quality of raw medicinal plant materials and finished products depend on factors that may be classified as intrinsic or extrinsic. However, quality control for the cultivation and collection of medicinal plants as the raw materials for herbal medicines may be more demanding than that for food production; possibly for this reason, only China, the European Union, and Japan have recently developed guidelines on good agricultural practices for medicinal plants. Medicinal plants should be harvested during the optimal season or time period to ensure the production of medicinal plant materials and finished herbal products of the best possible quality. The time of harvest depends on the plant part. Detailed information concerning the appropriate timing of harvest is often available in national pharmacopoeias, published standards, official monographs and major reference books. Prior to initiating a collection expedition, the geographical distribution and population density of the target medicinal plant species should be determined. When the collection sites have been identified, local and/or national collection permits should be obtained. Essential information on the target species should be obtained. Results of this article showed new techniques in collection and harvesting and drying of herbal medicines.

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Determination of growth and distribution of *Centella asiatica* in the Anzali lagoon

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Abstract

AB-e-Boshghabi with scientific name of *Centella asiatica* is among those plants that has valid distribution only in the protection zone of Anzali lagoon. This herb has some active constituents, which categorizes it as a medicinal plant. This herb has been used as an anticancer, antifertility agent, antipsoriatic, an agent for wound healing, etc. This study was designed to identify collection, distribution of *Centella asiatica*. Therefore, this natural region has studied by various Flores, particularly Flora Iranica. Our team has traveled to these regions and only we found it in two regions in the Anzali lagoon.

The result study showed the density and growth of this species had declined due to the growth of the plants and the human and animal disturbance.

The maximum growth of these plants was observed in some parts of regions in which animal activities were at minimum.

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Production of sarsasapogenin from tissue culture of *Asparagus racemosus* and its quantification by HPTLC

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Abstract

To develop an alternative method for production of sarsasapogenin by plant tissue culture technique and its quantification in *Asparagus racemosus* and its in vitro cultures using HPTLC.

Murashige and Skoog's (MS) basal medium supplemented with various growth regulators was used for development of shoot and root calli while, hormone free MS medium was used for development of *Agrobacterium tumefaciens* (MTCC-532) mediated transformed shoot culture.

The quantification of sarsasapogenin was done using CAMAG HPTLC system, solvent system: Chloroform: Acetone (80:20) and spraying reagent: Anisaldehyde sulfuric acid at 365 nm wavelength.

The calli from shoot and root and morphogenetic shoot and root culture as well as *Agrobacterium tumefaciens* mediated transformed shoot culture of *Asparagus racemosus* was developed on MS medium.

The sarsasapogenin was found present in natural plant as well as in in vitro cultures. It was estimated quantitatively by CAMAG HPTLC system which, showed that highest amount (0.133%) was found to be present in shoot tumor followed by root callus (0.127%) that are 2.59 and 2.5 times higher respectively than natural root.

It can be concluded that the in vitro cultures produced by plant tissue culture technique have great potential for the production of higher amount of sarsasapogenin, which can be used for industrial scale up processes.

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Antimicrobial effects of five Iranian popular medicinal plants on some intestinal bacteria

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Abstract

Gastrointestinal infections are still a major concern in the developing countries. The aim of this research was to investigate antimicrobial effects of five herbs in Iranian traditional medicine on some of the pathogenic intestinal bacteria.

Hydroalcoholic extracts of *Amaranthus paniculatus* L. (seeds), *Cannabis sativa* L. (fruits), *Rhus coriaria* L. (epicarps), *Urtica dioica* L. (leaves), and *Zataria multiflora* Boiss. (aerial parts), obtained from Tehran botanicals market and identified by the Herbarium of School of Pharmacy, Tehran University of Medical Sciences, were prepared by cool percolation method using ethanol 80. Antimicrobial activities of the extracts against several standard bacteria including *Escherichia coli* ATCC 8739, *Staphylococcus aureus* 6539-p, *Staphylococcus epidermidis* ATCC 12229, *Bacillus cereus* PTCC 1274, and also clinical isolates of *Salmonella typhi*, *Proteus vulgaris*, *Serratia marseense* and *Shigella flexneri* were carried out using disc and well diffusion methods. The minimum inhibitory concentrations (MICs) and minimum bactericidal concentrations (MBCs) of the most two potent extracts were determined using microdilution method.

Screening of the herbal extract for their possible antimicrobial effects using disc diffusion method revealed that at least two of the extracts *R.coriaria* L. and *Z. multiflora* Boiss. had considerable effects. The potential of antibacterial activities of the two extract were further evaluated using MIC and MBC methods. The MICs of *R.coriaria* L. on *S. marseense* and *B. cereus* compared to GM were about 50 and on *S. aureus*, *Pro. Vulgaris* and *E. coli* were about 200. *R.coriaria* L. did not have bactericidal effect on *B. cereus* and *E. coli*.

Rhus coriaria, an Iranian traditional herb with astringent effect and as a spice agent seems to have promising inhibitory effect on some bacteria involved in gastrointestinal infections.

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Evaluation of inhibitory effect of chamomile alcoholic extract on the growth and production of certain factors of *Staphylococcus aureus*

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Abstract

Investigation of the alcoholic extract of chamomile against growth and production of catalase, Dnase and haemolysin of *Staphylococcus aureus* (ATCC29213) were the aims of this study

In this study, German chamomile was prepared from Tehran agricultural researches center. Extraction was performed by ethanol 85 (Maceration method) then solvent is removed by vacuum distillation system (concentrated extract).

For initial screening of antibacterial property of the concentrated extract and determination of the mean diameter of growth inhibition zone of the MIC concentration, agar well diffusion assay were used.

One ml of the concentrated extract was dried at 50°C within 24 hours. Its dried weight per ml was then measured.

Dried extract powder is used for determination of Minimal Inhibitory Concentration (MIC) & Minimal Bactericidal Concentration (MBC) by using of the tube dilution method in broth media.

In order to investigate the enzymatic activities, bacteria were treated by MIC (sub-inhibitory Concentrations, SIC) of extract for 24 hours as well as control tube (without extract).

Catalase activity on 3% H₂O₂ by Iodometric & KMnO₄ titration method, Dnase activity by culture of the treated bacteria and control tube on Dnase agar plate and comparison of nucleic acid precipitated zones and haemolysin activity in supernatant of the bacterial suspensions against sheep RBC for tests and control tube were performed and compared.

All results were repeated three times and were analyzed by SPSS software.

Our results were as follows:

-Mean dry weight: 83.8±0.002 mg/ml

-MIC: 2.615 mg/ml

-MBC: 5.23 mg/ml

-SIC: 1.35 mg/ml

-SIC: 0.653 mg/ml

-Inhibitory zone of MIC: 15 ± 1.2 mm

In concentration 1.35 mg/ml of extract 28-34% was decreased.

Haemolysin activity:

In concentration 0.653 mg/ml of extract 12-14% was decreased

In concentration 1.35 mg/ml of extract 79-84% was decreased

Catalase activity:

In concentration 0.653 mg/ml of extract 34-38% was decreased

In concentration 1.35 mg/ml of extract 71-74% was decreased

Dnase activity:

In concentration 0.653 mg/ml of extract 46-50% was decreased

Although some of the concentrations of the chamomile alcoholic extract showed pronounced antibacterial activity on the *Staphylococcus aureus*; but its introduction as an antibacterial compound requires more information.

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Citrus extract protects mouse bone marrow cells against gamma-irradiation

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Abstract

With respect to radiation damage to humans, it is important to seek possible radioprotectants to modify the normal response of biological systems to radiation-induced toxicity or lethality. For this reasons, the search for less-toxic radiation radioprotectants has spurred interest in the development of different compounds.

The radioprotective effects of citrus extract were investigated by using the micronucleus test for anticlastogenic and cell proliferation activity. In this study, three doses of citrus peel extract were used prior to gamma rays. Mice bone marrow cells were prepared and stained with Giemsa/mayGranwald. Micronuclei PCEs were scored with microscope.

A single intraperitoneal (i.p.) injection of citrus extract (*Citrus aurantium* var.amara) at 250, 500, 1000 mg/kg body weight 1 h prior to γ -ray irradiation (1.5 Gy) reduced the frequencies of micronucleated polychromatic erythrocytes (MnPCEs) and normochromatic erythrocytes (MnNCEs). All three doses of citrus extract significantly reduced the frequencies of MnPCEs and MnNCEs in mice bone marrow compared to non-drug-treated irradiated control ($p < 0.005-0.05$).

The flavonoids contained in citrus extract, have probably shown protective activity, and reduced the clastogenic effect of radiation on mice bone marrow. Therefore, fruits and vegetables containing flavonoids may be considered useful as protective agents under such stress conditions as irradiation.

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Cytotoxic effect of some indigenous Iranian plants

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Abstract

Cancer is a general term applied to some malignant diseases that may affect different parts of the body. Recently there has been a great effort in finding and synthesizing effective anticancer drugs. Effective compounds from plants such as periwinkle and taxus, give us a bright view of the future of plants and their anticancer agents. The alkaloids vincristine and vinblastine which were discovered in the late 1950s and the diterpenoid taxol, which belongs to a new class of agents, the taxanes, are of the most important classes of antineoplastic drugs derived from these plants. The epipodophyllotoxins, etoposide (VP-16) and teniposide (VM-26), are semisynthetic compounds derived from podophyllotoxin, a plant product. Yet another group of plant-derived agents includes camptothecin (CPT) and its derivative, topotecan and irinotecan (CPT-11). In evaluating extracts and pure compounds and generally all the compounds which are of interest for their anticancer effect, the first step is evaluating cytotoxicity. If the results are interesting, then other experiments will be carried out and the evaluation will be continued.

Several approaches have been used in the past, to measure cell viability and growth. Many of these methods are limited by the impracticality of processing large numbers of samples, or by the requirement for handling hazardous materials. The MTT Assay, in contrast, provides a rapid and versatile method for assessing cell viability. MTT assay offers a quantitative, convenient method for evaluating a cell population's response to external factors, whether it is an increase in cell growth, no effect, or a decrease in growth due to necrosis or apoptosis.

The spectrophotometric procedure can detect slight changes in cell metabolism, making it much more sensitive than trypan blue staining. There is no need to store or manipulate radioactive substances, the procedure is relatively simple and uses equipments already available in most labs. Assays are run in a 96-well plate and read with a microtitre plate reader, allowing high-throughput handling of samples.

Screening the Iranian medicinal plants for their cytotoxic activity is one of the fields of interests of TMRC, the work began with screening plants from solanaceae, and some considerable cytotoxic effect was seen in one species of the family, which raised the hopes to continue the subject. Based on the previous reports of cytotoxic activity about some genera of Compositae, some other species growing in Iran were selected, and these plants will be checked for their cytotoxic activity.

The research will be continued and TMRC has planed to cover most of the existing families growing in Iran, hope that this research will give good results for those suffering from cancer.

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Composition and antifungal activity of peppermint (*Mentha piperita*) essential oil

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Abstract

Essential oils are natural compounds, which have extensive applications in perfumery, food and pharmaceutical industries. Nowadays they are also used in preservation of foods and disinfectant production. Considering the undesirable effects of synthetic compounds on the nature and living beings, using natural compounds like essential oils have been noticed recently.

Peppermint (*Mentha piperita*) belongs to Labiateae family and is originated from Mediterranean region. It is widely cultivated in the world.

In this research, we studied composition and antifungal effects of *Mentha piperita* oil on *Fusarium oxysporum* f. sp. *ciceri.*, *Macrophomina phaseolina*, and *Dreschlera oryzae* on the basis of agar dilution method.

The test was carried out with factorial experiments based on the random complete block design with triplicates.

1- Essential oil analysis with GS/MS revealed that main compounds of oil include menthol (19.76%), menthan-3-one (19.31%), menthofuran+isomenthone (9.12%), 1, 8-cineole+beta phellandren (8.8%) and menthol acetate (5.63%).

2-Comparison of means by LSD ($\alpha=1\%$) revealed that inhibitory effect of essential oil varied among different fungi. After 48 hours, results showed no significant difference between the growth of fungi at 800 and 1600 ppm neither did show between water and alcohol controls, but differences between 200 and 400 ppm were significant. The minimum inhibitory concentration (MIC) of A and C was observed in 800 ppm, where as it was 1600 ppm in the case of B.

After 72 hours, investigation showed that the MIC for A increased to 1600 ppm, whereas for C it was 800 ppm yet. After 3 days, 1600 ppm treatment completely inhibited the growth of fungi. After 7 days, it was found that 800 and 1600 ppm on C fungus, and 1600 ppm on A fungus were completely inhibitory.

3-Investigations on the fungicide effect of peppermint oil, showed that peppermint oil in these concentrations have no fungicide properties.

The results of our studies revealed that the *Mentha piperita* oil exhibited a significant antifungal activity. Compounds of essential oils depend on climatic condition, species and chemotype.

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Evaluation of some Iranian plants for *in vitro* antiplasmodial activities

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Abstract

Fourteen plant species collected in Iran and selected mainly on the basis of their antimicrobial and/or antifungal activities were evaluated for *in vitro* antiplasmodial and cytotoxic effects in a study designed to screen plant extracts with selective activity against *Plasmodium falciparum*. The methanol extracts of nine of the species tested exhibit activity against *Plasmodium falciparum* (MIC values <50 ug/ml).

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Potent in vivo anti-malaria activity of Goniotalamin against rodent malaria parasite infection in mice

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Abstract

Goniotalamin was evaluated for its anti-malaria activity in-vivo, using the 4-Day Suppressive Test (Peters & Robinson, 1975).

The test were carried out against two strains of rodent malaria parasites, the sensitive strain *P. berghei* ANKA (MRA 311) strain and the resistant strain *P. yoelii* (MRA 312). An Initial screening was carried out using a single dose of 10 mg/kg body weight administered subcutaneously and orally to experimental mice, given daily for 4 days. Based on the initial findings, a further in vivo blood schizonticidal activity of the compound in mice using the 4 Day Suppressive Test were carried out on several doses. These doses selected based from the initial findings, were 30, 60, 90 and 120 mg/kg body weight administered orally and subcutaneously as a single dose given daily for 4 days. On day 4, blood smears were prepared from all the mice and stained with Giemsa staining. The parasite density was counted microscopically by counting the percentage of parasitised erythrocytes per 1000 erythrocytes. The percentage parasitemia was determined in relation to control. The standard substance control used was chloroquine

The findings on the *P. berghei* ANKA strain indicated that the dose 90 mg/kg and 120 mg/kg of Goniotalamin given orally demonstrated a suppressive of 98% and 99.7% respectively. Goniotalamin administered subcutaneously at dose of 120 mg/kg gives a 90.5% suppression of infection. The data on the *P. yoelii* strain will be discussed. Goniotalamine has potential for anti-malaria drug.

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In vitro antifungal effect and chemical composition of thyme (*Thymus vulgaris*) essential oil on some fungi

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Abstract

In this study, thyme essential oil was extracted by water distillation method and was analysed by GS/MS, then we investigated the antifungal effect of this essential oil on *Fusarium oxysporum* f.sp. *ciceri*. (A), *Macrophomina phaseolina* (B), *Bipolaris spicifera* (C) on the basis of agar dilution method with different concentrations (200, 400, 800 and 1600)

The test was carried out with factorial experiment based on the random complete block design with triplicate.

1- The major compounds of thyme essential oil were found to be Terpinen (4.65%), Cymene (12.16%), Thymol (19.8%), Linalol (4%), and Caryophyllene (4.07%).

2- Analysis of data with LSD ($\alpha=1\%$) showed that inhibitory percentage between fungi was different. After 48 hours results showed no significant difference between the growth of fungi at 800 and 1600 ppm and also between water and alcohol controls, but differences between 200 and 400 ppm were significant. The minimum inhibitory concentration (MIC) of A and C fungi was observed in 400 ppm, where as it was 800 ppm in the case of B fungus. Concentrations of 800 and 1600 ppm were 100% inhibitor about all the fungi.

After 72 hours investigation showed the similar results to the period of 48 hours growth time. The concentration of 400 ppm was inhibitor on A and C Fungi completely after 72 hours, but the minimum inhibitory concentration for B fungus was increased to 1600 ppm. After 3 days, 1600 ppm treatment was completely inhibitor for all fungi. After 7 days, it was found out that 800 & 1600 ppm on A fungus, 1600 ppm on B fungus and 400 ppm, 800 ppm, 1600 ppm on C fungus was inhibitor completely.

3- Investigation on thyme fungicidal effect showed that concentration of 1600 ppm was fungicide on B and C fungi but other concentrations have fungistatic property.

The results of our studies revealed that the thyme essential oil exhibited a significant antifungal activity.

Thyme (*Thymus vulgaris*) belongs to Labiateae family. It is an important medicinal plant. The antifungal and antibacterial activity of this essential oil has been reported. Thyme antifungal activity is due to the presence of thymol that is the major compound of this essential oil.

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Cytotoxic activity of in vitro cultures of *Linum* spp.

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Abstract

There are some reports on the lignan constituents of *Linum* spp. In this study, we investigated the cytotoxicity of *Linum* spp. in vitro cultures for the first time. If they show significant cytotoxic activity, they will be valuable candidates for isolation of cytotoxic compounds in large scale from them by tissue culture technology.

In our study, we chose normal root, hairy root and calli cultures of *Linum* species. We investigated their cytotoxic activity on 5 human cell lines, K562 (chronic myeloid leukemia), Jurkat (T cell leukemia), Hela (cervix adenocarcinoma), A549 (lung carcinoma) and Fen (bladder carcinoma) by MTT assay.

Among studied cultures, hairy root culture of *L. album* showed the best cytotoxic activity on all cell lines. Callus culture of *L. persicum* and *L. glaucum* had also significant cytotoxic activity on all cell lines. Normal root culture of *L. mucronatum* showed weak cytotoxic activity on Jurkat and significant activity on other cell lines. Hairy root culture of *L. nodiflorum* had no cytotoxic activity on Jurkat but significant cytotoxicity on other cell lines. Hairy root culture of *L. catharticum* showed no cytotoxicity on Jurkat, weak cytotoxicity on K562 and significant cytotoxic activity on other cell line.

The cytotoxic activity of *Linum* cultures investigated here could be due to lignan compounds. Therefore, *Linum* cultures appear as valuable candidates for isolation of cytotoxic compounds in large scales.

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In vivo antiplatelet aggregatory activity of *Aloe vera* juice on mice cerebral micro vessels

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Abstract

Aloe vera plant (*A. vulgari* and *A. barbadensis*) has being used traditionally as a medicinal plant for centuries. Gel from the inner central zone of the leaves and latex from pericyclic cells are used for medicinal purposes. The present study was conducted to elucidate the beneficial effects of *Aloe vera* juice on the platelet aggregation in cerebral microvessels of mice.

Male mice were injected with Saline (control) or *Aloe vera* juice (0.2 ml/30 g b.w.) one hour before the experiment. Animals were anaesthetized and trachea was intubated. Craniotomy was performed and a window was opened on the left side of the skull. Layer of dura was removed. Brain surface microvessels were exposed and animal was placed on the microscope stage. Microscope was connected to a monitor and VCR to record all events. Exposed brain surface was continuously irrigated with ACSF solution. After the body temperature was maintained at 37°C, Sodium fluorescein (2%, 0.1 ml/10 g) was injected i.v. through tail injection. After 30 seconds, high intensity mercury light was switched on to induce platelet aggregation photochemically. Appearance of first platelet aggregation and total blood flow stop were timed in seconds. Data was statistically analyzed using Mann-Whitney test.

Our results show that in the animals treated with *Aloe vera* juice, venule as well as arteriole platelet aggregation timings were significantly delayed ($p < 0.05$) in comparison to the controls. [(Control: venule 1st aggregation 25.40 ± 1.14 , flow stop 173.80 ± 19.9 ; Arteriole: 1st aggregation 56.00 ± 8.51 , flow stop 140.40 ± 8.93 ; *Aloe vera*: venule 1st aggregation 28.50 ± 1.97 , flow stop 209.67 ± 16.11 Arteriole: 1st aggregation 103.50 ± 7.31 , flow stop 166.17 ± 19.63)]. Data shows the beneficial influence of *Aloe vera* by delaying thrombus formation in the cerebral microvessels, in vivo.

This study was performed in vivo to examine the antiplatelet aggregatory effects of *Aloe vera* juice, a traditionally used medicinal plant. We find that *Aloe vera* juice is beneficial in delaying the platelet formation in the blood vessels of the brain. The delay in thrombus formation may be attributed to the presence of superior antioxidants present in the *Aloe vera* juice by protecting cells in the body against destruction by free radicals thus reducing the risk of arteriosclerosis.

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Quantitative study of ascorbic acid in some of Persian Rose species

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Abstract

Rose hip is one of the natural rich sources and also other important components such as tannins, flavonoids, carotenoids, pectin, Nicotinic acid ...

Iran is one of the important habitat for Rose and it is used as a food and folk remedy. In this study ascorbic acid in four species of Iranian nature Rose hip were assayed. A hydro alcoholic extract were prepared via maceration method and the assay of ascorbic acid was applied by two methods: Titrimetry (by DCPIP) and Spectrophotometry (by 2, 4-dinitro phenyl hydrazine) provided by calibration curve.

As a result, the amounts of ascorbic acid with two methods were very similar and the range was 1000-4000 per 100 g ripened fruits.

The amount of ascorbic acid in Iranian hips, in comparison with citrus fruits (as the most economic source containing approximately 50 mg vitamin C per 100 g ripe fruit) appears very interesting.

Ascorbic acid from Iranian hip in comparison with the samples of foreign regions is very exciting and can be a good source in competition with other countries.

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Bioassay Methods useful to select the natural product cancer chemopreventive agents

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Abstract

Prevention of malignant disease such as cancer is obviously much more important than therapy, so primary prevention tactics should be invoked with the greatest possible effort. Because delaying a disease such as cancer is somehow equivalent to cure and it is now generally accepted that cancer can be managed through chemopreventive interventions. Since a considerable number of known cancer chemopreventive agents are naturally occurring, it is reasonable to assume that additional entities with desirable preventive activities exist in nature.

In the field of cancer chemoprevention, definition of the best bioassay system remains subjective. Use of in vitro assays permits the identification of a suitable number of lead starting materials. Assays that are suitable for monitoring inhibition of carcinogenesis at the stages of initiation (antioxidant activity, antimutagenic activity, induction of quinone reductase activity in cell culture), promotion (inhibition of phorbol ester-induced ornithin decarboxylase activity in cell culture, inhibition of cyclooxygenase activity), and progression (induction of cell differentiation, anti-estrogenic activity) and inhibition of protein kinase C, are established. Unfortunately, animal models or in vitro test systems cannot be used to select a useful component due to logistical constraints, and it is virtually impossible for in vitro test system to fully epitomize the biological intricacies of a mammal. Thus, as an intermediate solution, a mouse gland organ culture model or rat tracheal epithelial cells are primarily employed for secondary evaluation.

Prophylactic cancer chemoprevention in general population is fraught with logistical problems, but due to the magnitude of potential benefits, it is imperative to continue movement in this direction. Several assays are established for monitoring inhibition of carcinogenesis at different stages. The active plant extracts are selected in this procedure. Since the animal models or in vitro test systems cannot fully epitomize the biological system of a mammal, a mouse mammary gland organ culture or rat tracheal epithelial cell are employed for secondary evaluation.

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Effect of aqueous extract of shallot (*Allium ascalonicum*) on inhibition of growth of *Pseudomonas aeruginosa*

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Abstract

Shallot from Liliacea are the oldest plants that are used for treatment of different disease such as bacterial, parasitic, fungal infections and also viruses. In addition, *Pseudomonas aeruginosa* is the most important human pathogen with invasive nature that causes different infections especially in cases with abnormal defence. It is resistant to many antibiotics, makes some problems in treatment. This study was done to evaluate the effect of shallot on *pseudomonas aeruginosa*.

The underground bulbs of this plant were percolated in distilled water for 7 days, heat-dried (50°C in a dry oven) and the crystalline products were isolated. 10, 20, 30, 40 and 50% w/v of aqueous solutions of these crystal were prepared. Microorganism used in this experiment was *pseudomonas aeruginosa* (PTCC1074). The above suspension was cultured homogenously in Muller Hinton Agar, and the antibacterial property of extracts was then investigated by well assay method. The zone of growth around each well was assessed after 24-48 hours.

The results of this study indicated that *pseudomonas aeruginosa* (PTCC1074) was sensitive to this extract, total results showed that antimicrobial effects was from bacteriocide type and the most effect was in aqueous solution about 50%. In addition, the inhibitory growth zone diameter was in 30 mm to 50 mm, so that not only we can use this extract for its anti-microbial effect on *pseudomonas aerogenes* as people use it in their food but also it can be a wonderful study in pharmacology field for scientists.

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Evaluation of antibacterial activity of extract of *Curcuma amada* against *Staphylococcus aureus*

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Abstract

Staphylococcus aureus is an important pathogen and produces a widespread infection. Increasing usage of antibiotic for *staphylococcus aureus* infections has created antibiotic resistance and subsequently new antibiotics should be produced. Medicinal herbs with antimicrobial activity have had important roles in traditional medicine. The purpose of this study was to determine the antibacterial activity of hydroalcoholic extract root of *Curcuma amada* against staphylococcus aureus (25923 ATTC).

The roots of *C. amada* were collected from India and its hydroalcoholic extract was obtained and then antibacterial activity against *S.aureus* was evaluated by disk diffusion and broth serial dilution methods for determining of MIC (minimum inhibitory concentration) and MBC (minimum bactericidal concentration).

The results from the antibacterial tests demonstrated that the *C. amada* hydroalcoholic extract is effective against *Staphylococcus aureus*. The MIC and MBC of the extract against *Staphylococcus aureus* were 2.5 and 5 mg/ml, respectively.

This study demonstrated that hydroalcoholic extract of *C.amada* have excellent antibacterial activities against *Staphylococcus aureus* and are beneficial to human health. They have the potential to be used for medical purposes and to be utilized as antibacterial additives in making paper products. However, we need more investigation in vitro and in vivo.

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An alarming biochemical side effect of *Teucrium polium* on the plasma membrane alkaline phosphatase of k562 cell line

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Abstract

The unexpected enhancement of alkaline phosphatase (ALP) activity in the serum of a group of STZ-diabetic rats receiving the *Teucrium polium* extract (with hypoglycaemic property) may be attributed to its probable side effects. In order to get a more precise knowledge about this subject, we evaluated the effect of *T. polium* extract on the plasma membrane ALP activity of K562 cell line.

Our data indicated that upon treatment of cells with a single effective dose of *T. polium* extract, the ALP activity in the cultured medium increased by 20%, while the matching activity in the plasma membrane of the same cell decreased 20%.

These observations clearly indicate that *T. polim* is capable of damaging the plasma membrane by enhancing the solubilization of one of its major components, ALP. Regarding the medical significance of ALP and these data the pharmaceutical consumption of *T. polium* extract, as a hypoglycaemic aid, should be carefully supervised by medical personals

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Antiviral activity of root extracts from *Tagetes minuta* against Herpes simplex virus (HSV-1)

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Abstract

A large number of plants have been used by various societies for the treatment of disease. *Tagetes minuta* L. (Asteraceae) is an annual species native of South American, although it has become widespread throughout the world. It is used in medicinal tea and condiments. Decoction of the plant is used as beverage and as a remedy for common cold, digestive system complaints, stomach upsets, diarrhea and liver ailments. Moreover, essential oil, other secondary metabolites reported from plants are flavonoids and thiophene. The natural thiophenes, which usually contain 12 carbon atoms, exhibit substantial antiviral, antibacterial, antifungal, nematocidal and insecticidal properties. Characterized 4-thiophenes as major components, BBT, BBTOH, BBTOAc and a-T, which occur in different concentrations in every part of *Tagetes* plants. The main site of thiophene accumulation is however, the root.

In this study, we investigated the antiviral effect of root extract of *Tagetes minuta* on HSV-1. For this purpose root plant was collected in full bloom stage and washed. The roots plant material was ground and extracted with 70% ethanol by maceration. The macerate was filtered and concentrated at 40 C in a rotary evaporator. Vero cell was grown in Dulbecco's modified Eagle medium containing 5% fetal bovine serum, in 96 well microtest trays.

The results shown that *Tagetes minuta* has activity against HSV-1 virus cytopathic effect.

So possibly root extracts from *Tagetes minuta* has the potential antiviral activity.

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Evaluation antiviral activity of aerial parts extracts of *Echinacea purpurea* from Iran against HSV-1

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Abstract

Since years ago, phytopharmaceutical drugs have been used by various societies, as a traditional treatment. *Echinacea purpurea* (Asteraceae) is the best known of the dozen or so species of the genus Echinacea, a group of perennial prairie wildflowers native to the central grasslands of North American. *E. purpurea* is cultivated widely throughout the United states, Canada and Europe, although it has become widespread throughout the world, for its beauty as well as for its reported medicinal properties. Echinacea is used most widely as prevention or treatment for the common cold and flu, but they are also indicated for infections and topical conditions such as candidiasis, strep throat, staphylococcus infections, infected wounds, skin ulcers and burns, with the proposed mechanism of action relating to its reported ability to stimulate the immune system

In this study, we investigated the antiviral effect of aerial parts extract of *E. purpurea* cultivated in climatic condition of Iran on HSV-1. For this purpose aerial parts plant was collected in flowering stage. The plant material was ground and extracted with 30% ethanol by maceration. The macerate was filtered and concentrated at 40°C in a rotary evaporator. Vero cell were grown in Dulbecco's modified Eagle medium containing 5% fetal bovine serum, in 96 well micro test trays.

The results show that *E. purpurea* has activity against HSV-1 virus cytopathic effect. So possibly, it has the potential antiviral activity.

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Trypanocidal activity of some endemic species of *Satureja* in Iran

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Abstract

Trypanosoma cruzi, a hemoflagellate protozoan (family Trypanosomatidae), is the ethiological agent of Chagas disease, which is affecting 16-18 million people, with more than 100 million exposed to the risk of infection. Higher plants are a potential source of new drugs to improve the treatment of Chagas disease. Until recently, Rutacea, Meliaceae, Simaroubaceae and Burceraceae families have been studied in order to find trypanocidal compounds. In addition, some species of *Dracocephalum* (Labiatae) have been found as the main sources of active terpenoids and flavonoids against epimastigotes of *Trypanosoma cruzi*

Aerial parts of the plants (flowers, leaves and stems) were dried carefully and reduced to powder, followed by extraction three times with diethyl ether by maceration at room temperature for 72 hours. This process was repeated on the marc with acetone, methanol and water, successively, and then the solvents evaporated under reduced pressure to obtain the concentrated extracts. All extracts were dried under vacuum for 24 h in order to give dried powder of extracts. Epimastigotes of *Trypanosoma cruzi* (Tulahuen strain) were kept in GIT medium (Wako) supplemented with hemin (12.4 μ M, Wako). The epimastigotes in GIT medium (10 μ L) were incubated with a test sample dissolved in EtOH (5 μ L) and autoclaved saline (185 μ L). All samples were incubated at 27°C for 24 hours. The movement of epimastigotes was observed under a microscope. We assumed that immobilized organisms were died.

In this study, the in vitro trypanocidal activity of some fractions for *Satureja mutica* and *S. macrantha* belonging to the Labiatae family was evaluated. Acetone fractions of both plants were the most active fraction (MLC=12.5 μ g/ml) against the epimastigotes of *Trypanosoma cruzi*, the ethiological agent of Chagas disease. The trypanocidal activity seems to be decreased by fractionation using MeOH and water as solvents.

The results obtained from trypanocidal assay revealed that *satureja* is a promising source of active anti-trypanosoma compounds. In addition, the phytochemical studies showed that the active fractions were rich of terpenoids and flavonoids.

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Inhibitory effects of alcoholic extracts of thyme on verotoxin production of entero hemorrhagic *Escherichia coli* o157:h7

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Abstract

Enterohemorrhagic *Escherichia coli* is a human pathogen that causes hemorrhagic colitis due to its verotoxin. It is an agent with food poisoning importance; a significant number of cases subsequently develop hemolytic uremic syndrome (HUS) which is probably the most common cause of renal failure in children and occasionally resulting in death.

Inhibition of bacterial growth in food is the most important factor in prevention. Rate of heating, incubating temperature and type of substances in food cooking are important factors to control the microbial contamination. Since a long time ago, plants also have been applied in food compounds for their preservative and flavor characteristics.

In this research, the inhibitory effect of thyme alcoholic extract on verotoxin production of Enterohemorrhagic *Escherichia coli* was examined. Thyme plant from natural resource research center of Tehran was provided and Enterohemorrhagic *Escherichia coli* (ATCC 42889) was provided from Boo-Ali reference laboratory. After providing of alcoholic extract of plant (10% w/v) the effect of extract against Enterohemorrhagic *Escherichia coli* was studied by cylinder plate method (40 µl) and broth tube (contained extracts) and verotoxin production in sub inhibitory concentrations with VTEC-RPLA (Reserve passive Latex Agglutination) was examined. Experiments were repeated three times. Results were documented by Mean diameter of inhibitory zones and number of cfu.

The most effect in cylinder plate method was observed in marsh and cumin extracts. Result showed that MIC and MBC of Alcoholic thyme extract for EHEC were 1/64 (780 µg/ml) While diluted 1/128 (390 µg/ml) inhibited verotoxin production.

The finding results indicate that this plant can be used as a food flavor to affect the growth and verotoxin production of Enterohemorrhagic *Escherichia coli* and as a food preservative instead of chemical substances.

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Anti-cancer compound from medicinal mushrooms

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Abstract

Various mushrooms have been used as folk medicine for long times, the higher Basidiomycetes have become a matter of great interest due to their diverse nutritional, medicinal, and pharmacological properties. 650 species and intraspecific taxa from 182 genera of higher Hetero- and Homo-basidiomycetes have been listed that contain biological active anti-tumor and immunostimulative polysaccharides.

Recently, lentinan, shizophyllan and krestin have been accepted as immunocuticals in several oriental countries. Polysaccharides present the highest capacity for carrying biological information since they have the greatest potential for structural variability.

Immunocutical compound offer hope for cancer patient. These substances are pro-homeostatic uniquely effective immune boosters, which pose no threat of autoimmune backlash. The enhancement or potentiation of host defense mechanisms has been recognized as a possible means of inhibiting tumor growth without harming the host.

Antitumor polysaccharides isolated from mushrooms (fruit-body, submerged cultured mycelial biomass or liquid culture broth) are either water-soluble β -D-glucans, β -D-glucans with heterosaccharide chains of xylose, mannose, galactose, and uronic acid or; β -D-glucan-protein complexes-proteoglycans.

Certain terpenoids and their derivatives have been isolated from mushroom species have been shown cytotoxic and anti-cancer properties.

The discovery and identification of new safe drugs, without sever side effects, has become an important goal of research in the biomedical sciences and mushrooms have shown that they can be an interesting goal for cancer research.

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Cytotoxic activity and aryltetraline lignans of *Linum persicum* Kotschy ex Boiss.

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Abstract

Podophyllotoxins represent an important and unique position among natural products. They serve as the starting material for the semi-synthetic anticancer drugs etoposide and teniposide, so considerable attention has focused on the availability of these aryltetralin lignans. *Linum* is one of the genera, with some reports on the presence of podophyllotoxin and related compounds, such as *L. album*, *L. flavum*, *L. capitatum* and *L. catharticum*. *Linum persicum* is an endemic plant, which grows wild in Dena Mountains in Iran. The purpose of this study was to investigate the cytotoxic activity of *L. persicum* and isolation of aryltetralin lignans from the plant.

The cytotoxicity of the total extract and two lignan rich fractions of *Linum persicum* were evaluated by MTT assay on five different cell lines. Three aryltetralin lignans were isolated from the methanolic extract of the aerial parts of *L. persicum* by column chromatography and preparative TLC.

The total extract showed the highest cytotoxicity among the other fractions. According to the results the most cytotoxic effect was seen on K-562 cell line and among them the total extract was more active (IC₅₀=1.29). All of them were more active against human chronic myeloid leukemia (K-562), T cell lines (jurkat) and lung carcinoma (A5). Podophyllotoxin, 5-methoxy podophyllotoxin and 5-methoxy podophyllotoxin acetate have been isolated and their structures have been confirmed by ¹H-NMR and Mass spectra. *Linum persicum* can be considered as a new source of podophyllotoxin.

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Antibacterial activity of *Pentanema divaricata* ethanol extract and its fractions

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Abstract

In the past few years, the world has taken a new view to herbal remedies and their applications and many researchers in various fields of medicine are studying this subject. In our program searching for antibacterial agents we have selected an extract prepared from the *Pentanema divaricata*. No report on the antibacterial activity of this species has been published in literature.

Pentanema divaricata was collected from the around of Shiraz, Iran and identified. This plant was tested for its antibacterial activity on different bacterial species. The whole plant was used in this experiment and extracted with methanol (yield 13%). The methanol extract was partitioned in succession with different solvents. A notable effect was observed on gram-positive bacterial species

Our results suggest that the methanol extract of *Pentanema divaricata* has an antibacterial activity, which is distributed in the non-polar fractions.

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The effect of olive extract on human neutrophils

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Abstract

The neutrophil respiratory burst, which is essential for the host's ability to kill microorganisms, can be stimulated by some natural agents. *Olea europaea* (Oleaceae) is used as anti hypertensive, hyperglycemia, and hypercholestermia in traditional medicine. Here in this study, we evaluate the stimulatory effect of olive oil extract on oxidative burst in human neutrophils in vitro.

Buffy coat was separated from heparinized blood from normal volunteers by sedimentation in 1% W/V dextran then overlaid on Ficoll-Hipaque and centrifuged for 30 min. After washing, the neutrophils were cultured in 96 well plates containing 0.2 ml RPMI1640 as medium.

After treatment with different doses of olive oil extract, the wells were washed with HBSS then incubated with 0.1 ml NBT (1 mg/ml) and 0.1 ml RPMI1640. The reduced NBT was solubilised by adding DMSO then the OD of 630 nm was read using micro ELISA reader. Statistical analysis by ANOVA, tukey test showed that there is dose response effect in the range of doses that examined ($p < 0.05$).

These results indicate that the olive extract can be viewed as a stimulator of innate immunity.

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Evaluation of the antimicrobial effects of extract of *Zataria multiflora* against oral Streptococci

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Abstract

Dental caries is the most common chronic disease which involve the civilized humankind and is designated as the “disease of the civilization”. Oral Streptococci such as *S. sanguis*, *S. salivarius* and *S. mutans* have a very important role to play in the process of plaque formation. In order to inhibit and control caries process, the growth of such Streptococci must be reined. The purpose of this study was to evaluate the anti-microbial effects of *Zataria multiflora* on the mentioned streptococci.

The MIC and MBC of *Z. multiflora* were determined by change of number of bacteria in the presence of different concentrations of *Z. multiflora* in differernt times.

The results showed that MIC values for *S. sanguis*, *S. salivarius* and *S. mutans* were 15%, 20% and 10%. MBC values were 25%, 20% and >25%, respectively. Reduction of number of bacteria in the present of different concentrations of extract, were depended with the concentration and time. With increasing of concentration and time, the efficacy of extract on the living bacteria, were increased. Multiflora is native in Iran and with more study and research on the antimicrobial effects of this medicinal herb, probably, we can use it for producing a drug (mouthwash).

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The evaluation of cytotoxicity of suab1 on 1929 fibroblast cell line and the comparison with formocresol

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Abstract

Formocresol is common treatment in exposed pulp of primary teeth at caries, trauma and damaged with cavity preparation. Although, clinical and radiographic success and good clinical results are observed, dentistry societies are still searching for materials interchangeable with formocresol. Suab1 is a phytochemical agent that was selected because of its anti-bleeding effect. In this study, we evaluated cytotoxicity of SUAB1 in comparison with formocresol on L929 fibroblast cell line.

Cytotoxicity evaluation performed with Crystal Violet Assay (ELISA), microscopic observation and optical counting. Results were calculated with Excel[®] software. Analysis of variance and t-test were used for statistical inference; $p < 0.05$ was considered statistically significant.

Results showed that cytotoxicity of SUAB1 is lower than formocresol. SUAB1 appears as a good substitute candidate of formocresol in pediatric dentistry.

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Antimicrobial essential oils of *Bunium elegans* and *Bunium caroides*

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Abstract

The essential oils of two plants of the genus *Bunium* called the common name "Zireh" in Persian have been analyzed using GC, GC/MS and ¹³C NMR spectroscopy. The oils were subjected to antibacterial activity tests.

The essential oils have been extracted using hydro-distillation method. The Oils were subjected to analytical GC and GC/MS. The components of the oils were identified using GC retention indices and mass spectra. Identification of the main components was confirmed by NMR spectral data. The oils were then subjected to antibacterial test against *Bacillus subtilis* by agar disk diffusion method.

The oils were found to be rich in sesquiterpenoids such as garmacrene D and caryophyllene and phenyl propanoids e.g. myristicin and dill apiol.

In this paper, we will compare the constituents of the oils of *B. elegans* and *B. caroides*. The results show that the oils have similar constituents and this indicates that the plants are taxonomically similar.

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Cytotoxicity and antimicrobial assessment of *Euphorbia hebecarpa*

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Abstract

Euphorbiaceae is a family of plant spread in all parts of the world except very cold regions. The genus *Euphorbia* consists of over eighty-two species grown wildly in Iran. Some of *Euphorbia* species are used in the treatment cancer and tumors in different countries. The genus *Euphorbia* has been the source of a large number of biological active compounds. In this study petroleum ether, ether, ethylacetate and methanolic extracts of the whole aerial parts of *E. hebecarpa* were examined for antimicrobial, brine shrimp toxicity and cytotoxicity activities.

Antimicrobial activity was performed by disc diffusion method on two Gram positive and two Gram negative and two fungus species. Biologic activity of all of the extracts were studied using *Artemia salina* (brine shrimp) and the most cytotoxic extract were examined on five different cell lines using MTT colorimetric assay.

All of the extracts showed low antimicrobial activity. Results of the biological activity of the extracts on Brine shrimp showed that the most toxicity was related to metanolic extract of *E. hebecarpa*. The metanolic extract of *E. hebecarpa* did not show any activity against KB cell line in all concentrations. At 100 µg/ml, it was active against K562, U937 and Fen cell lines and inhibited 66.3%, 56.1% and 51.0% of cell line proliferation, respectively.

Euphorbia species are a source of natural bioactive compounds, which are active against some tumor cell lines.

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Antioxidant and antimicrobial medicinal plants from Iran

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Abstract

The Objective of this research was determination of antioxidant and antimicrobial activities of different plants of the families lamiaceae including several salvia species and some plants of the family Compositae e.g. Onopordon, Centaurea from Iran.

The radical scavenging activities of the above-mentioned plants were measured spectrophotometrically using DPPH (2, 2 diphenyl-picryl-hydrazyl). The antimicrobial tests were performed on an acetone extract of the plant material. The microorganisms applied for the bioassays were *Bacillus subtilis* and *Escherichia coli* as Gram positive and Gram negative bacteria respectively. The fungi were *Cladesporium herbarum* and *Fusarium oxysporum*.

Our research on about 50 different plants showed *Salvia choleroleuca*, *Salvia hypoleuca*, and *Salvia sahandica* as the most potent antimicrobial plants. Our assays to separate the active constituents are continuing by TLC bioautography.

We have determined different active plants amongst several candidates and studied them for further purification and identification by bioassay guided fractionation and purification using different chromatographic and spectroscopic methods including HPLC, 1D and 2D-NMR in the phytochemistry department of our institute.

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Gnidilatimonoein from *Daphne mucronata* induced differentiation and apoptosis in leukemia cell lines

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Abstract

Among various treatments, plants play a crucial role in cancer chemotherapy. Base on literature data, different species of the thymeleaeceae family have been found to be good sources for anticancer agents. Therefore, our laboratory has initiated a research project on evaluating the anticancer properties of the Iranian medical plant, *Daphne mucronata* (Thymeleaeceae).

Gnidilatimonoein is a new diterpene ester compound that is purified from *Daphne mucronata* with antiproliferative and anti-metastatic effects in different tumor cell lines. Based on the inhibitory role of this agent on the cell cycle progression of K562 cell line, we were interested to check gnidilatimonoein for induction of differentiation and apoptosis in different human leukemia ML-1, HL-60 and K562 cells.

Cell viability was determined by trypan blue exclusion method. Cell differentiation was studied in terms of morphology, NBT reduction in leukemia cells (HL-60 and ML-1) and benzidine staining in erythroleukemia (K562) cells. Apoptosis was detected by fluorescence microscopy (Acridine orange/Ethidium bromide double staining), annexin V flow cytometry and DNA electrophoresis. After 48 hours of treatment with 10 μ M gnidilatimonoein, 80-70% of HL-60 and ML1 cells showed NBT reduction. Indeed gnidilatimonoein induced monocyte differentiation of myeloid leukemia HL-60 and ML-1 cells but not K562 erythroleukemia cells. In this condition, we observed the growth inhibitory effect (60%) without substantial loss of viability (<10%). However, at 25 μ M, gnidilatimonoein was a strong cytotoxic agent. Morphology of HL-60, ML1 and K562 cells treated with 25 μ M of gnidilatimonoein for 48 h indicated that, more than 50% of HL-60 and K562 cells and 31% of ML1 cells showed apoptosis. DNA degradation was also confirmed in all of cell lines. Both cell cycle and annexin V flow cytometry analysis indicated that early induction of apoptosis without cell cycle arrest occurs in all of cells after 25 μ M drug treatment.

The traditional way of leukemia treatment is eradication of every tumor cells, but hemorrhagic diathesis often occurs rapidly with fatal outcomes. Differentiation therapy may be an alternative approach to the treatment of leukemia. Our results indicate that gnidilatimonoein, at low concentrations (<10 μ M) is a potent differentiation inducer and at high concentrations, it early induces apoptosis. Therefore, based on the dual apoptotic and differentiation effects of gnidilatimonoein, it may be concluded that this new anticancer agent is a powerful candidate for leukemia chemotherapy.

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Investigation of cytotoxic activity for *Achillea talagonica* and *A. tenuifolia*

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Abstract

Achillea (Asteraceae) comprises 115 species, which are mainly distributed in Europe, Asia, and North Africa and as an introduced plant in the New World. The genus Achillea, generally called Bumadaran in Persian, is well known for medicinal properties such as anthelmintic, anti-inflammatory and anti-microbial effects. Achillea has long been used in traditional medicine for treatment of neuralgia and rheumatic pain. *Achillea talagonica* and *Achillea tenuifolia* are two of nineteen herbaceous species growing in north of Iran. In previous studies, *A. talagonica* showed the strongest in vivo immunosuppressive activity and *A. tenuifolia* had an antimicrobial effect.

In this study, we examined the cytotoxic activity of the ethyl acetate, methanol and aqueous methanol extracts of these two species by Brine Shrimp Cytotoxicity Assay, which is a well-known screening method for finding the active natural products using *Artemia Salina* eggs.

The results show that all extracts from both plants have a good cytotoxic effect against the larve of *A. salina*. The minimum lethal concentration of aqueous methanolic extract of *A. tenuifolia* is 250 µg/ml. The effective concentration of the methanolic extract of *A. talagonica* is more than 100 µg/ml. Thus, Ethyl acetate extract of *A. tenuifolia* is more effective than *A. talagonica*.

Finally, *Achillea talagonica* and *A. tenuifolia* are two effective plants on the larve of *A. salina*. Different polarity extracts of both species showed cytotoxic activity.

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Comparison antibacterial activity of *Quercus persica* and *Quercus ilex*

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Abstract

Plants extracts has been used in traditional medicine for many years. The use of them has the least side effects in comprison to the synthetic drugs. The aim of this study was investigation and comparision of biological active components of *Quercus persica* and *Quercus ilex*.

Sampling was done from *Quercus persica* and *Quercus ilex* stands. The antibacterial activity was assayed against *Pseudomonas aeruginosa*, *Klebsiella pneumonia* and *Eschechia coli* in aqueous, ethanol, acetone and hexane extracts of leaves by means of agar diffusion method in nutrient agaar. Bacteria were incubated at 37°C and the inhibition zone was measured.

Aquaous and hexane extracts did not show antibacterial activity but ethanol and acetone extracts of *Quercus persica* and acetone extracts of *Quercus ilex* had antibacterial activity. The inhibition zone for *Klebsiella pneumonia* *Eschechia coli* and *Pseudomonas aeruginosa* of ethanol and acetone extract of *Quercus persica* were 11, 10, and 14 mm and 8.5, 12 and 15 mm, respectively. The inhibition zone for acetone extract of *Quercus ilex* against *Klebsiella pneumonia* *Eschechia coli* and *Pseudomonas aeruginosa* were 10, 10 and 18 mm, respectively.

Results indicate that some species such as *Quercus* that seem to be useless have many biologically active components. Comparison between two species shows that endemic species (*Quercus persica*) are more active than nonendemic species (*Quercus ilex*).

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Study of antibacterial effects of *Anvillea garcini* occurring in south of Iran

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Abstract

The purpose of this study was to test flower and leaf extracts against some gram-positive and gram-negative bacteria. Two different microbial tests were performed; extract antibiogram, and determination of MIC (minimum inhibitory concentration) of extracts.

The results showed that antimicrobial activities of extracts were notable on a wide spread of bacterias, especially on the choosen bacteria. Working tables and details are available in the original paper.

Plant oils and extracts have been used for a wide variety of purposes for many thousands of years. This study confirms that many plant extracts and essential oils posses in vitro antibacterial activity.

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Determination of antioxidant constituents in the herb *Cissus quadrangularis* Linn.

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Abstract

The herb *Cissus quadrangularis* Linn. has been widely used as antihemorrhoid preparations in Thailand. In order to establish the quality control procedures, both qualitatively and quantitatively determination of the antioxidant constituents of the herb were investigated by using the HPLC method.

The antioxidant constituent of the plant was identified by the standard DPPH and ABTS methods, together with the conventional fractionation and isolation process, consequently, quercetin was proposed as a marker for analysis. A quantitative analysis by a RP-HPLC was developed and validated, and the quercetin content in the plant samples collected from various locations and different months in a year were also determined, including the finish tablets product.

The main antioxidant, quercetin was found in the ethyl acetate fraction which exhibit the strongest antioxidant properties with the IC₅₀ of 94.54 + 0.62 ug/ml (for the DDPH method) and 34.7 + 0.013 ug/ml (for the ABTS method). The developed HPLC method comprises of the Aquasil C18 column (5 µm, 4.6 x 250 mm id.), the mixture of 0.05% ortho-phosphoric acid: acetonitrile (65: 35) as mobile phase (flow rate 1.0 ml/min), the detector wavelength at 260 nm and ethyl paraben as internal standard.

Validation of the methods were investigated and proved to conform to the ICH guideline criteria on accuracy, precision, specificity, linearity, range, system suitability test (tailing factor, resolution factor). The content of quercetin varies in the range 1.5-13.6 mg% when the plants were collected from six different months and range 0.8-1.5 mg% in three different locations at the same period. The content in finish preparations was found to correspond to the content in raw material used

The developed HPLC method is applicable to the quercetin analysis in plant extract or plant preparation with accurate and precise results.

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Antimicrobial activity of different extracts of *Centaurea depressa*

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Abstract

Interest to natural medicines is increased for the sake of fewer side effects, microbial resistance and more compatibility to the human body. *Centaurea depressa* (commonly known "cornflower") belongs to compositeae family, which comprises more than 74 species in Iran. It has been claimed that it can be used in many cases, such as infections, cough, constipation, dermatitis, fever, jaundice, pain, water retention and cancer. Tannins, different salts, mucilage, cyanine are some of active compounds in this medicinal herb. In addition, lignanglycosides, sesquiterpenes, flavonoids and phytoecdysteroids have been found in different species of *Centaurea*.

In this study *Centaurea depressa* was collected from Deilaman village in Gilan province in order to assay the antimicrobial activity, since it was used as an anticough and anticold remedy in those area.

After collecting and drying the plants, extracts were made by percolation method in solvents with different polarity (hexane, chloroform and methanol). The agar diffusion method was used to assess the activity against five bacteria and one yeast: staphylococcus aureus, bacillus subtilis, escherchia coli, pseudomonas aeroginosa and candida albicans.

The results, evaluated as the diameter of the inhibition zone of microbial growth, showed that methanolic extract was the most active extract against some gram-positive bacteria.

Methanolic extract had more antimicrobial effect compared to nonpolar extracts. Therefore, the active compounds might have polar chemical structure that will be identified by the research group.

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Extract of *Curcuma longa* in the treatment of radiation lesions

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Abstract

Reactive oxygen species (ROS) have been indicated in the development of diseases such as cancer, cardiovascular diseases, degenerative diseases and ageing. An increasing body of evidence indicates an association between increased and persistent oxidative stress and the development of radiation damage in tissues such as skin, central nervous system and kidney. On the basis of the new hypothesis i.e. the involvement of oxidative stress in the development of radiation-induced normal tissue lesions, an antioxidant drug has been developed. This consists of Curcumin and vitamin E. Curcumin is a phenolic antioxidant and anti-inflammatory initially isolated from the rhizome of the plant *Curcuma longa* Linn. It inhibits lipid peroxidation including radiation-induced lipid peroxidation. The efficacy of this combination drug has been tested in a number of biological models of radiation damage. This drug significantly reduced the incidence of radiation-induced myelopathy in a rat model. Radiation myelopathy is a rare but severe normal tissue damage that develops as a result of demyelination of individual nerve fibres. The lesions progresses with demyelination and eventual white matter necrosis that results in paralysis. In addition, the drug significantly reduces the incidence of radiation-induced mucositis. With single doses of radiation, a significant dose modification factor (DMF) of 1.24 ± 0.06 was obtained. Radiation-induced mucositis of upper aerodigestive tract is a major dose-limiting factor in the treatment of head and neck tumours that develops as a consequence of the depletion of the stem cells of the epithelial lining of the mucosa. With a more clinically relevant fractionated irradiation schedule, the DMF increases to a remarkably high level of 1.44 ± 0.08 .

It is concluded that the antioxidant compound consisting of the extract of *Curcuma longa* and α -tocopherol has great potentials in the treatment of radiation-induced normal tissue lesions.

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Gnidilatimonoein from *Daphne mucronata* inhibits DNA synthesis in human cancer cell lines

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Abstract

The anticancer agents from plant sources usually exert their action through a wide range of mechanisms. As part of our studies of plants for new anticancer agents with emphasis on Thymelaeaceae family, we examined the cytotoxicity and anti-tumor activity of the water extract of *D. mucronata* leaves against induced breast tumor in rats. In the current study, we were interested to obtain some knowledge about the mode of action of the new compound.

Cytotoxicity evaluation of gnidilatimonoein, the most active isolated diterpene ester from *Daphne mucronata*, revealed strong antiproliferative activity among several different human cancer cell lines (K562, CCRF-CEM, HL-60, MOLT-4 leukemia cell lines, and LNCaP-FGC-10 a prostate cancer cell line) and a mouse BALB/C fibrosarcoma cell line (WEHI-164).

Using flow cytometry technique, it was found that treatment of the most responsive cells (K562) with gnidilatimonoein inhibited the progression of cells through G1 phase by almost 15% compared to the untreated cells. The population of the treated cells in the S and G2 phases was reduced by 8.3% and 5.4%, respectively. Based on the extent of [3H]-thymidine and [3H]-uridine incorporation into DNA and RNA, respectively, the major metabolic effects of gnidilatimonoein were found to be mainly on DNA and to a less extent on RNA synthesis. Additionally, the activity of inosine-5'-monophosphate dehydrogenase (IMPDH), under the effects of gnidilatimonoein, was reduced in the treated cells by 44%. These data strongly suggest that the purine biosynthetic pathway is significantly affected by gnidilatimonoein.

Our data indicates that gnidilatimonoein can inhibit the cell proliferation through DNA synthesis inhibition. These effects are mainly achieved through reduction of IMPDH activity.

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Effects of some fractions from *Achillea biebersteinii* and *A.millefolium* on the epimastigotes of *Trypanosoma cruzi*

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Abstract

Higher plants are a potential source of new drugs to improve the treatment of Chagase disease, which is affecting 16-18 million people, with more than 100 million exposed to the risk of infection (Ambrozin et al., 2004; Coura & Castro, 2002). Current therapy is unsatisfactory, because the only two drugs available, benznidazole and nifortimox possess severe side effects and their activity is limited to the acute phase (Nogueada- Torres et al., 2001).

In this study, the in vitro trypanocidal activity of some fractions for *Achillea biebersteinii* and *A.millefolium* (Compositae) was evaluated. Epimastigotes of *T. cruzi* (Tulahuen strain) were kept in GIT medium (Wako) supplemented with hemin (12.4 μ M, Wako). The epimastigotes in GIT medium (10 μ L) were incubated with a test sample dissolved in EtOH (5 μ L) and autoclaved saline (185 μ L). All samples were incubated at 27°C for 24 hours. The movement of epimastigotes was observed under a microscope.

Diethyl ether fractions of both plants were the most active fraction (MLC=12.5 μ g/ml) against the epimastigotes of *Trypanosoma cruzi*, the ethiological agent of Chagas disease. The trypanocidal activity seems to be decreased by fractionation using MeOH and water as solvents.

The results obtained from biological assay revealed that *Achillea* could be a source of active trypanocidal compounds. In addition, the preliminary phytochemical studies showed that the active fractions consisted of terpenoids and flavonoids.

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Antifungal activity of *Peganum harmala* seeds extract in vitro

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Abstract

Peganum harmala (Zygophyllaceae) is an intriguing herb with a long history of medicinal use. Antifungal activity of *P. harmala* seed extract against certain fungal species was investigated in vitro.

Antifungal activity of the extract of *P. harmala* seeds was investigated against several fungal species using in vitro agar dilution technique. The fungal species included: *Microsporum canis*, *Microsporum gypseum*, *Trichophyton mentagrophytes*, *Trichophyton rubrum*, *Trichophyton tonsurans* and *Fonsecaea pedrosoi*.

P. harmala extract, diluted 2.5:1000, produced complete inhibition against *microsporum* and *trichophyton* species. The extract had a considerable antifungal activity. Further purification and extraction of the active principles (alkaloids) of *P. harmala* seeds might show a true antifungal activity comparable to standard antifungal drugs.

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Antioxidant screening of some medicinal plants of Iran

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Abstract

One of the most reactive and dangerous agents for the living cells is reactive oxygen free radical species (ROS). When there is an imbalance between ROS generating and scavenging systems (oxidative stress), tissue damages will appear in human body such as degenerative disorders of CNS like Alzheimer's disease. Recently, a high interest in medicinal plants containing antioxidants has been increased because of lower side effects, higher water solubility and more potency. The objective of this work was to carry out a screening test to find the most antioxidant activity in plants containing high levels of flavonoids (as reported in a phytochemistry research by the authors before).

A total methanolic extract of plants was prepared and dried for evaluation of antioxidant activity. Antioxidant activity of the extracts was evaluated by using diphenylpicryl hydrazyle (DPPH) added to different extract concentrations. Absorption of DPPH decreased if there was an antioxidant activity.

Some medicinal plants belong to polygonaceae family showed antioxidant activity. We concluded that some of the plants showing antioxidant activity contained high levels of flavonoids (as showed before by the authors) and so it is under isolating and identifying the chemical structures of active components.

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Antiproliferative effects of flavonoid fractions from *Calendula officinalis* flowers in parent and tamoxifen resistant T47D human breast cancer cells

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Abstract

The risk of human breast cancer is concerned to cumulative exposure of the breast cells to endogenous estrogens. Strategies aiming at reducing the production of estrogens may be useful for the prevention of estrogens-related breast cancer. Several natural products with plant origin have the potential value as chemo-preventive or therapeutic agents in cancer. Flavonoids, the natural polyphenol compounds, have shown antiviral, anti-inflammatory, anti-mutagenic and anti-carcinogenic activities. *Calendula officinalis*, a member of compositae family, is well known for its pharmacological effects such as anti-inflammatory, anti-viral, anti-HIV, anti-tumor, anti-mutagenic and cytotoxic properties. Mechanism of the possible chemo-preventing action of flavonoids has not been yet completely understood. They may exert their chemo-preventive and anti-carcinogenic effects in estrogen-dependent cells by inhibiting aromatase, 17 β -hydroxysteroid oxidoreductase and other enzymes involved or by possessing estrogenic and anti-estrogenic activities.

In this study, three major flavonoid fractions were separated from a methanol extract of *Calendula officinalis* flowers by preparative TLC. These fractions were evaluated for inhibition of parent and tamoxifen resistant T47D human breast cancer.

The fractions did not have inhibitory effect. We also examined the effect of quercetin and isorhamnetin on the growth of parent and resistant T47D cells in the presence or absence of tamoxifen. It was found that quercetin increased cell proliferation of the resistant T47D cells at the presence of tamoxifen but no effect was detected by using quercetin itself. In consequence, isorhamnetin had not any proliferative or anti-proliferative activity on the both cell lines. Many mechanisms can contribute to the affects obtained on the cell growth.

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Effects of Gnidilatimonoein, from *Daphne mucronata*, on the plasma membrane glycoproteins in two cancerous cell lines

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Abstract

Metastasis describes the ability of a tumor to invade normal tissue and generate secondary tumors at sites distant from the primary tumor. The mechanism responsible for the inhibition of tumor metastasis by different agents is at least partly associated with the ability to interfere with cellular functions such as adhesiveness, motility and invasiveness. Certainly effective treatment of metastasis requires a full understanding of the mechanisms underlying metastasis. Recently we have reported the anti-tumor and anti-metastatic potency of an alcoholic extract of *D. mucronata* (Thymeleaceae) using animal models. Additionally, we have also reported the effect of the crude extract and one of its active anti-tumor components Gnidilatimonoein, on cell-to-cell and cell-to-matrix adhesion. According to these data, the plant extract is capable of quenching the adhesion of cells to cells or the cells to the matrix by almost 80-85%. To get a better understanding of the mode of action of Gnidilatimonoein, we need to evaluate the effect (s) on the plasma membrane glycoproteins, which are believed to be involved in cell-to-cell communications and attachment to membranes.

After labelling the cultured BHK-21 and Wehi-164 cells with [3H]-fucose for 24 hours, the cells were treated with a single pharmaceutical dose (1.2 micromolar) of genidilitimonoein. The cells were incubated at 37°C for another 24 hours. Then the cells were collected, washed, lysed and the plasma membrane were collected, extracted and hydrolyzed by protease digestion. The digested samples were analysed by gel filtration chromatography using Sephadex G50.

The membrane glycoproteins of the plant treated and untreated cells were studied after metabolic labeling of the cells with [3H]-fucose followed by the isolation and chromatographic analyses of the labeled glycoproteins. According to our data, it became evident that the cell surface glycoproteins of the treated cells had smaller molecular weights compared to the untreated cancerous cell lines.

Based on our observation, it may be concluded that *D. mucronata* crude extract and its active component, Gnidilatimonoein, are capable of modulating the glycosylation of the membrane glycoproteins. These modifications most certainly will affect the whole functions of a metastatic cell mainly its adhesion to different matrixes and its invasion capability to new sites. We will discuss the experimented details in this report.

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Induction of apoptosis by novel inosine monophosphate dehydrogenase, 3-hydrogenkwadaphnin

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Abstract

Today's medical world is highly dependent on several natural products (e.g. taxol) in fighting different kinds of cancer and in constantly working to find new compounds. In this respect, 3-hydrogenkwadaphnin is a new diterpene ester isolated from *Dendrostellera lessertii* (Thymelaceae). It has been previously shown that this new compound has high anti-tumor activity and the capability of arresting the growing leukemic cells at G1/S phase of their progression cycle, which finally leads to cell death. Further studies revealed 3-hydrogenkwadaphnin decreased both DNA synthesis and inosine monophosphate dehydrogenase (IMPDH) activity in K562 and HL-60 cells. Here we decided to interrogate the mechanism (s) and mode of cytotoxic effects of this compound. Inosine monophosphate dehydrogenase is the key regulatory and the rate-limiting enzyme of the de novo biosynthetic pathway of purines. Apparently, the activity of this enzyme significantly increases in tumor cells in proportion to the proliferation. We hypothesized that inhibition of IMPDH and consequently depletion of guanine nucleotide pool is responsible of cytotoxic effect with characteristic of apoptosis.

HL-60 and K562 leukemia cells were treated with increasing doses of 3-hydrogenkwadaphnin. Thereafter, the mode of its cytotoxic action was determined by Acridine orange/Ethidium bromide double staining, DNA fragmentation, sub-G1 flow cytometry and electron microscopic. Involvement of guanine nucleotide pool was tested by co-provision of guanosine and deoxyguanosine that replead GTP and dGTP pool size, respectively.

3-hydrogenkwadaphnin at low doses (10 nM) enhanced fragment of the apoptotic HL-60 cells within 72 hours of treatment. Higher doses (25 nM) led to rapid induction of apoptosis, which could be detected as early as 24 h. The majority (85%) of the treated HL-60 cells died by apoptosis, 72 hours after exposure to 3-hydrogenkwadaphnin. Although K562 cells are generally more resistant to a variety of apoptotic stimuli, to our surprising 3-hydrogenkwadaphnin was equally effective in this cell line as compared to HL-60. 3-hydrogenkwadaphnin-induced apoptosis was almost totally prevented by supplementation with guanosine, but not with adenosine or deoxyguanosine, indicating the specific effect of 3-hydrogenkwadaphnin in reducing the pool size of GTP.

The results indicate that 3-hydrogenkwadaphnin decreases GTP pool size and depletion of this pool, and not dGTP, is probably the cause of cell death through apoptosis. Induction of apoptosis

is a major goal of chemotherapy. GTP depletion induced apoptosis is selective for tumor cells; thereby 3-hydrogenkwadaphnin could be presented as a powerful drug for treatment of cancer, especially leukemia.

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The antioxidant activity of polyphenolic fraction of *Thymus daenensis* Celak.

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Abstract

Damage to cell and tissues by oxidation of polyunsaturated fatty acids (PUFA) is one of the most important risk factors of many diseases such as atherosclerosis, roumatoid arthritis and cancer. Oxidation occurs due to increase of oxidant agents such as free radicals or decrease of antioxidants.

Thymus daenensis Celak. is a herbaceous wild medicinal plant endemic to Iran. In the course of screening for antioxidant properties of Iranian medicinal plants, the antioxidant activity of polyphenolic fraction of *T. daenensis* with different concentration on rat's hepatocyte membrane was investigated. The activity was shown by the measurement of formation of Malondialdehyde (MDA) and leakage values of SGOT and LDH.

The results indicate that the concentration of 0.05 mg/ml of polyphenolic fraction of *T. daenensis* has significant antioxidant activities and decreaseses the formation of MDA and release of SGOT and LDH from damaged hepatocytes in the amount of 15.3%, 37% and 20.7% respectively.

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Inhibitory effect of *Zizyphus* extract on fungal infection

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Abstract

Cutaneous fungal infections remain a clinical problem. Among fungi, dermatophyte molds are the major cause of various type of Tinea. These infections are still difficult to manage and some of the antifungal agent are poorly tolerated or have been associated with emergence of resistance. The traditional methods, especially the use of medicinal plants place an imperative role to cover the basic health in the developing countries. *Zizyphus*, traditionally applied as a hair cleanser, is one of the Rhamnaceae families that grow wild in the central region of Iran. Here we study the probable antifungal effect of this plant.

The in vitro antifungal activity of *Zizyphus* extract was evaluated against three different genera of dermatophytes (*Microsporum*, *Trichophyton* and *Epidermophyton*) and two known saprophytes (*Aspergillus* and *Candida*) by pour plate method. Different concentrations of mentioned extract were then suspended in Sabouraud culture medium containing cyclohexamide and chloramphenicol. Fungal growth was determined by measuring colony's diameter.

Significant decrease on fungal growth was seen by increasing *Zizyphus* concentration in the culture medium in comparison with controls. Based on the data, five percent concentration of *Zizyphus* extract completely inhibited the *growth* of all dermatophyte species. However, no inhibitory effect was seen against saprophytic molds.

Herbal remedies used in traditional folk medicine may help to overcome the growing problem of resistance to antifungal drugs and their relative toxicity. Based on the results of this study, we can consider *Zizyphus* extract as a new source for developing local antifungal agents. However further studies is needed to determine the efficacy of active component of this extract.

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Phytochemical and antibacterial study on native plants of Taleghan

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Abstract

Taleghan has a suitable ecological condition for growth of diverse plants. There are many species that are used in folk medicine by inhabitants for the treatment of infection diseases but there further information is required.

For this study, approximately 200 species were collected and identified at the Herbarium, school of pharmacy, Tehran University of medical sciences (THE). Pre-Phytochemical tests and antibacterial effect of plant extracts considered.

For this proposes hydroalcoholic extracts were prepared using suxhelt apparatus and then dried over vacuum system. Quality tests for consideration of four components: Alkaloid, flavonoid, saponin and tannin, were done via laboratory tests. For antimicrobial effects, total extracts were tested at a concentration of g/ml against eight microorganisms: Streptococcus, Proteus, Escherichia, Salmonella, Staphylococcus, and pseudomonas. Blood agar and Muller Hinton were used as cultures media

Result of pre-phytochemical testes as fallows:

- 84 percent of plant species had Saponin
- 42 percent of plant species had Tannin
- 45 percent of plant species had Flavonoid
- 13 percent of plant species had Alkaloid

69 species had attractive antimicrobial effect and three species including *Epilobium hirsutum*, *Centaurea bruguierana* and *Centaurea virgata* were the best ones. The most sensitive organism was staphylococcus and the most no sensitive was pseudomonas.

Phytochemical tests showed that the many of Taleghan's native species has Saponin and on this result, there is a chance for discovering some suitable species having steroidal components. Numbers of plants with Tannin and Flavonoid were the same and Alkaloid containing plants are very less.

Antibacterial tests showed that there is many species effective on tested bacteria's and the Saponin containing plants are the best ones.

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Essential oil composition of *Pimpinella eriocarpa* Banks & Soland from Iran

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Abstract

One of the most important aromatic plants is *Pimpinella anisum*. The genus *Pimpinella* contains 23 species that are found wild in different regions of Iran. *Pimpinella eriocarpa* is distributed in south and west of Iran. In this research, the oil composition of *P. eriocarpa* was studied.

Essential oils were isolated by hydro-distillation from the arial parts and seeds of *Pimpinella eriocarpa* individually, that were collected from Khojir (Northeast of Tehran province).

The yields of arial parts and seed oils were 1.3% and 5.7% w/w, respectively. Fifteen constituents in the arial parts oil and eight constituents in seed oil were identified.

Major constituents of the arial parts oil were pregeijerene (59.9%), limonene (17.6%) and elemicine (12.5%). Major constituents of the seed oil were Limonene (49.3%) and Elemicine (44.5%).

The oil composition of *P. eriocarpa* seeds and arial parts were investigated for the first time. Two major compounds (Limonene and Elemicine) were common in both oils. Seven trace constituents of arial parts oil not found in seed oil at all.

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Determination of aroma and bitter characteristic of Iranian hop (*Humulus lupulus* L.) variety by essential oil analysis

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Abstract

Hop (*Humulus lupulus* L) is cultivated worldwide for two purposes of aroma and bitter taste. The main objective of this study was to determine the predominant characteristic of hop cultivated in Iran using GC-MS analysis of essential oils obtained from fresh and heat dried hop strobiles.

Essential oils (EO) of female flowers of hop (*Humulus lupulus* L.) cultivated in Gorgan, Iran were obtained by hydro-distillation and the main components were identified and assessed by GC-MS analysis using computer database search or comparison with standard peaks from literature.

Percentage of the main constituents of EO obtained from fresh and dried flowers were β -caryophyllene (13.08, 2.67), β -myrcene (12.82, 0.03), alloaromadendrene (3.59, 1.53), β -farnesene (1.94, 0.74), α -limonene (1.77, 0.04), linalool (1.12, 0.03), β -pinene (0.78, 0.01), α -humulen (0.38, 0.18) and α -pinene (0.11, 0.01), respectively.

Based on other investigations, the high ratio of β -caryophyllene and alloaromadendrene in Essential oil can be used as an index for determining bitter characteristic in hop. Data obtained from GC-MS analysis also revealed high ratio of these two components in EO obtained from fresh hop of Iran, therefore the hop of Iran could be classified as a variety with predominant bitter characteristic.

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Qualitative and quantitative study on essential oil of *Citrus aurantium* L. cultivated in north of Iran

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Abstract

In order to qualitative and quantitative study on essential oil, obtained from leaf and peel of *Citrus aurantium* L. cultivated in North of Iran (Sari city) the leaves and fruits were gathered on April and November 2002, respectively.

Clevenger apparatus was used for hydro-distillation extraction in order to provide the oil of leaf and peel of *Citrus aurantium* L. The outputs of each essential oil were calculated as 0.19% and 1.93%, respectively. Analysis and identification of the oil's components carried out by GC and GC/MS and identification was done by comparison of their mass spectra with those of authentic samples together with the relative indices.

Fourteen components representing 99% of the leaf oil of *Citrus aurantium* L. were identified and among them, linalool (39%), linalyl acetate (39%) and alpha-terpineol (7%) were the major ones. Twenty compounds representing 99% of the peel oil of *Citrus aurantium* L. were identified and among them limonene (91%), beta-Myrcene (3%) and linalool (1%) were the major compounds.

In comparison with industrial standards on orange oil preparation that is base on limonene, the cultivated *Citrus aurantium* L. peel in North of Iran with 91% limonene, is considerable suitable for industrial purposes.

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Composition of the essential oil of *Lonicera heterophylla* Decne.

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Abstract

Aerial parts of the plant (250 g) were collected during flowering in April 2000 from Tehran province in Iran. The essential oil was obtained by steam distillation of air-dried aerial parts in an all-glass apparatus. The sample oil that was light yellow in color was dried over anhydrous sodium sulfate and stored under nitrogen in a sealed vial until required. The essential oil was examined by GC and GC/MS. The components of the oil were identified by comparison of their mass spectra to those of a computer library or with authentic compounds and confirmed by comparison of their retention indices, either those of authentic compounds or data published in the literature

The essential oil obtained by hydro-distillation from aerial parts of *Lonicera heterophylla* was examined by GC and GC/MS. Eleven compounds were characterized representing of about 85% of the total components detected. The major components were linalool (61.7%), (E)- β -ocimene (10.2%), γ -terpinene (7.9%) and p-cumene (7.4%). Other compounds of appreciable amounts are a-terpinene (6.1%), dihydrolinalool (1.8%) and terpinenyl acetate (1.7%).

A literature search did not reveal any reference to previous work on the essential oil of this species but immunocytochemical localization of polygalacturonic acid (pectin) and methyl-esterified pectin in the walls of pollen tubes of 20 species of flowering horticultural and crop plants (including *Jasminum humile*) grown in vitro has been investigated. In addition, a secoiridoid glucoside +AFs-10-cinnamoyloxyoleoside 7-methyl ester +AF0- of *Jasminum humile* var. *revolutum* has been reported.

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Analysis and identification of the essential oil of "*dracocephalum kotschi*"

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Abstract

Increasing importance of pharmaceutical plants in the world and the presence of many of these plants in our country, which has one of the richest Flora of the world, suggest the need for comprehensive studies. Research of secondary metabolites of medicinal and essential oily plants from Iran's dry to super dry deserts is very important.

One of the most famous species from "Labiatae" family is *Dracocephalum kotschyi*. It is known locally by the name "Zaringiah" which is a perennial herb and is grown in different parts of ratherbase rocky slopes of Kashan area. The essential oil of the plant was taken by hydro-distillation and was surveyed and examined by means of Gas chromatography-Mass spectrometry instruments.

Some of the important components have been interpreted by using the Kovats Index. Fragmentation of the components from Mass spectra and G.C chromatogram, which will be discussed.

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Constituents of the essential oil of *Artemisia herba-alba* in Kashan area

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Abstract

Because of application of “*Artemisia*” in traditional medicine, many species of this genus have been surveyed by phytochemists and pharmacologists. On the other hand, many species in compositeae family have been found that have effective ingredients in medicinal projects. One of iranian species investigated previously is “*Artemisia aucheri*” which have six highly oxygenated monoterpenes.

By using different methods such as gas chromatography, high performance liquid chromatography, couple of GC-MS spectrometry, infrared and nuclear magnetic resonance spectroscopy, extraction, purification and identification were done.

In “*Artemisia absentium*” ther are many reactive components that have a lot of properties such as digestive, carminative, antiromat, etc. Artemisinine (Qing hao su) is a sesquiterpene lactone from “*Artemisia anua*” which is used as anti-malaria.

In this article, we decided to study about “*Artemisia herba-alba*” from Kashan area.

By using hydro-distillation, the essential oil was taken, and then the important components of essential oil were identified by GC and GC-MS quantitatively and qualitatively.

Among the components, comphor (42.5%), 1, 8-cineol (18.3%) and camphene (8.7%) were recognized.

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Mineral content of seeds traditionally consumed in Fars and Kerman provinces

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Abstract

Our research indicates that in Kerman and Fars provinces the phenomenal growth of seeds dietary supplements have received considerable interest, because of their presumed safety and potential, nutritional and functional effects. This interest can be attributed to several social and economic factors, including consumer beliefs.

The amount of 7 minerals Zn, Cu, Fe, Mg, Mn, K and Na, were determined by Atomic Absorption Spectrophotometer (20BQ Varian) in eighteen kinds of seeds (ambari fiber seed, caraway seeds, coriander seeds, dates seeds, flax seeds, lettuce seeds, millet, myrtle seeds, melon seeds, nigelle seeds, pistachio nuts, pomegranate seeds, pumpkin seeds, purslane seeds, sesame seeds, sunflower seeds, walnuts, watermelon seeds).

Zn content varied from 3.08 to 8.33 mg/100 g in millet and lettuce seed respectively. Cu content varied from 0.07 to 1.96 mg/100 g in pomegranate seeds and purslane seeds respectively. Fe content varied from 0.30 to 28.91 mg/100 g in pomegranate seeds and lettuce seeds respectively. Mg content varied from 3.00 to 537.95 mg/100 g in pomegranate seeds and lettuce seeds respectively. Mn content varied from 0.00 to 9.48 mg/100 g in pomegranate seeds and purslane seeds respectively. K content varied from 227.92 to 1727.07 mg/100 g in millet and caraway seeds respectively. Na content varied from 3.00 to 575 mg/100 g in pomegranate seeds and pumpkin seeds respectively.

A traditional special food named Ghovattoo that is very popular in the area is made of some above seed's flour. People have adopted these seeds as multigrain bread ingredient and attractive topping for traditional breads and bagels as well as filler in traditional cookies named Kolombeh.

Seeds that are traditionally used in the area can be valuable nutritional source of minerals specially Zn and Cu. The health benefit of them can be enjoyable in food and food products such as additives.

The study showed that the amount of minerals in these seeds is quite notable, so it is supposed to be a rich source of other micronutrients.

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Chemical composition of essential oil *Tagetes minuta* from Iran

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Abstract

Tagetes minuta L. belongs to Asteracea family it is an annual species native of South American, although it has become widespread throughout the world. This species is especially well adapted to disturbed habitats. *Tagetes minuta* oil found a good market in perfumery and flavour industry. Many studies on *Tagetes minuta* have reported that the composition of extracted volatile components varied according to the harvesting location, the growth stage and the part of the plant. From these analyses, it can be deduced that *Tagetes* oils possess a varied composition according to intrinsic and or extrinsic factors, which reflect different physiological demands associated with growth, reproduction and defence.

The purpose of this study was to characterize essential oil composition of *Tagetes minuta* cultivated in climatic condition of Iran. The experiment was carried out at experimental farm of Tarbiat Modarres University during the spring-summer growing season of 2003. The seed were sown during April. Aerial parts of the plant were collected at full bloom stage at October and dried at room temperature. Essential oil of dried-aerial parts of plant was isolated by hydro-distillation for 3 h using Clevenger type apparatus and was analysis by GC and GC/MS

Twenty-two compounds were characterized with α -terpineol (20.8%), (Z)- β -ocimene (17.6%), dihydrotagetone (13.7%), (Z)-tagetone (8.3%), (E)-ocimenone (13.2%), (Z)-ocimenone (6%), cis-dihydro carrone (5%), l-terpineol (2.7%), limonene (2.6%), (E)-tagetone (1.9%) as major compounds.

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In Vitro induction of 3-hydrogenkwadaphnin production from *Denrostellera lessertii* seedlings

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Abstract

Denrostellera lessertii (Thymelaceae) is a native plant of Iran, which grows in limited area of Iran. So far, different groups have reported the anticancer products of many species of this family. The antitumor and anti-metastatic properties of *D.lessertii* have also been well worked out in our group and the most active component, 3-Hydrogenkwadaphnin has been purified and its chemical structure was established for the first time. For clinical application of this new anticancer agent, first we need to speed up the plant growth rate or its natural propagation. In that respect we induced germination of seeds and callus production as a probable source of 3-Hydrogenkwadaphnin.

The results of seed germination, callus production and 3-Hydrogenkwadaphnin production quantities under various experimental conditions will be discussed.

The innermost layer is very hard to break and this may explain the lack of natural germination, we removed the three coats, after sterilization of seeds, and placed the remnant on the M.S and/or B5-free-hormone media and kept at 25±3°C in the dark room

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Root cultures of *Linum* spp. (section Syllinum) as a source of 6-methoxypodopyllotoxin

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Abstract

Linum spp. (Linaceae) has been shown to accumulate cytotoxic lignans such as podophyllotoxin and 6-methoxypodopyllotoxin. Therefore, plant cell and tissue cultures of *Linum* spp. may be possible alternative sources for the lignan production. In this study, we focused on the production of lignans by root cultures of *Linum* spp.

Hairy root cultures of *L. nodiflorum*, *L. album* and *L. austriacum* and root culture of *L. mucronatum* were initiated on B5 liquid medium. Hairy roots were initiated by treating the samples with *Agrobacterium rhizogenesis*. Root samples were extracted by normal procedure for lignan extraction method and analyzed by HPLC.

Result showed high accumulation of 6-methoxypodopyllotoxin in the root and hairy root cultures of *L. album*, *L. nodiflorum* and *L. mucronatum*, whereas hairy root cultures of *L. austriacum* produced justicidin B as the main lignan.

Root and hairy root cultures of *Linum* species (section Syllinum) are manufacturers of 6-methoxypodopyllotoxin as the main lignan. Such cultures are powerful systems for the production of lignans in the large scale.

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Biotransformation of AD and ADD using *Nostoc muscorum*

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Abstract

The potential of microalgae for steroid transformation has been studied less than other microorganisms. They have been applied for the years in the treatment of environmental pollutions and preparation of nutrients. At the first time, Abul-Hajj and Qian indicated the conversion of androstendione (AD) to testosterone with eleven different strains of microalgae. Previtara's group showed the transformations of progesterone and prednisolone in several microalgal cultures within four studies. In other investigations, steroid substrates were 5 α -androstane-3, 17-dione, adrenosterone, androsta-1, 4-diene-3, 17-dione (ADD) and 17 β -hydroxy-17 α -methylandrosta-1, 4-dien-3-one. Hydrocortisone biotransformation using *Nostoc muscorum* was also reported with Tabatabae group.

In this study, the ability of *Nostoc muscorum*, blue green algae, for biotransformation of AD and ADD were investigated. This potential has not been previously examined. The selected microalgae was isolated during a screening program from soil samples collected from paddy field of north of Iran. The fermentation media were included BG-11 medium together with AD or ADD 0.05%, separately, as steroid substrates. The experiment was illuminated continuously with fluorescent lamps at 40 $\mu\text{Em}^{-2}\text{S}^{-1}$, and incubated at a temperature of 25 \pm 2 $^{\circ}\text{C}$ without shaking for ten days. The chloroform extract was loaded on silica gel plates with acetone/hexan (1:1) solvent system. The obtained fractions were further purified by re-chromatography, followed by crystallization. Then, the metabolites and unconverted substrates from each experiment were identified by melting points and spectral methods including ¹³C NMR, ¹H NMR, FTIR and MS.

The fermentation reaction of AD with *Nostoc muscorum* led to accumulation of testosterone in the broth medium. 1-Dehydrotestosterone was the product of ADD bioconversion in the microalgal culture. In both cases, the bioconversion characteristics observed were 17-carbonyl reduction. Thus, the microorganism represented to act selectively at the ketone group on the D-ring of both androstane like steroids.

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Identification of flavonoids from endemic plant of Iran *Zeravshania aucheri* (Boiss.) Pimenov.

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Abstract

Flavonoids are among the most widely distributed natural products in plants with 2000 different compounds occurring in free forms or as glycosides. They have assigned different roles in nature as signalling molecules. The major and general structures are Flavones, Flavonones, Flavonols, Isoflavones and Anthocyanidin. Methylated, acylated, prenylated or sulfated derivatives can also be met. Flavonoid pigments are favoured compounds as taxonomic markers because they are ubiquitous where as most other classes of secondary constituents have a limited distribution.

Z. aucheri was selected for analysis among the endemic species of zeravschania from peucedanum s.l complex of parsley family (Apiaceae). Powdered aerial parts of plant (300 g) were extracted with MeOH-water (80-20), concentrated under reduced pressure (27.8 g) and then washed with CHCl₃. 12 g methanolic extract was chromatographed on a silicagel (mesh 30-70) column and sample was eluted with different amount of chloroform and MeOH as solvent. Four fractions were collected according to their UV fluorescence at 254 and 365 nm. Each fraction was purified by paper chromatography on watman No.1 and 3 with using AcOH 15% and BAW (4:1:5) respectively as developing solvents. The sugar of flavonoids were identified by acid hydrolysis and then paper chromatography on watman no.1 using Et OAc-pyridine and water (12:5:4).

Identification of 6-Hydroxy kampferol, 3-7-O-diglucoside, Cherysoeriol, 7-O-glucoside, 6-Methyl kampferol and Caffeic acid were carried out by H-NMR, MS and UV spectroscopy. These compounds have been isolated for the first time from *Z.aucheri* and the amount of them were 21, 27, 27 and 30 mg respectively. The sugar of flavonoids was identified as glucose compared with authentic sample.

Investigation of methanolic extract of *Z. aucheri* showed that kaempferol derivatives are the major components (48 mg) and the quercetin derivative is the lesser. Flavonoid containing plants have antioxidant, anticancer, antispasmodic, anti-inflammatory, antibacterial and antifungal effect. S.J. Cutler (2000) in USA has reported kaempferol antileukemic effects. Pharmacological study of plant extract could be beneficial for clinical usage in the future.

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Extraction and determination of flavonoids in the leaf, extract, and in a pharmaceutical tablet preparation of *Salvia officinalis* by HPLC

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Abstract

This research was undertaken to attain a standard extract from the leaves of *Salvia officinalis* for use in a tablet dosage form, and to identify and determine the active components in the leaf, extract, and in Sweatosan as the standard tablet dosage form.

It has previously been reported that an aqueous infusion and a dried aqueous extract, in an open study with 80 patients comparably reduced sweat secretion. The internal use of Sage leaf has been approved by the commission E for dyspeptic symptoms and excessive perspiration. Therefore, a simple and rapid method for determining the amount of Luteolin and Apigenin using RP-HPLC and UV-detection was applied.

Luteolin and Apigenin were identified and determined in the leaf, leaf extract, and in a standard tablet form. The amount of Luteolin and Apigenin in the leaf and the extract were 0.24 (0.05% w/w), and 0.48 (0.01% w/w) respectively. The Sweatosan tablet contained 0.386 mg Luteolin and 0.086 mg Apigenin.

Extraction from the powdered Sage leaf was performed using the method of percolation with water as solvent. The solvent was evaporated by vacuum and the extract was dried up. A dried extract (15-25%) was prepared from the Sage leaf. The dried extract was then used in determining the amount of flavonoids. Complete hydrolysis was achieved one hour after employing methanol and hydrochloric acid. A good separation was obtained in less than 40 minutes with a methanol-water gradient.

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Identification and determination of polyphenols and tannin in the galls and in the extract of *Quercus infectoria*

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Abstract

The aim of this study was to develop a preparation of a hydroalcoholic extract of *Quercus infectoria* in order to study the physicochemical parameters, and to identify and quantitatively determine the amount of Polyphenols and Tannin in the galls and in the extract.

Preparation of an extract rich in Tannin from the galls of *Quercus infectoria*, as an astringent, can make incorporation into rectal creams easier, and improve its effect on anal fissure.

A hydroalcoholic extract (1:1) of *Q. infectoria* galls was prepared by the method of percolation. The Polyphenols and Tannin in the galls and in the extract were determined spectrophotometrically. The maximum absorption wavelength was around 730 nm. The hydroalcoholic extract contained about 46.0 percent of the dried materials. The amount of Polyphenols and Tannin were reported in the dried materials as 42.7, and 37.2 percent respectively. The amount of Polyphenols and Tannin were in the galls as 77.5 and 68.0 percent (w/w), and in the dried extract as 93.0 and 81.0 percent (w/w) respectively.

Quercus infectoria galls are rich in Tannin; Tannic acid is its main constituent. They are used externally in the treatment of infectious skin conditions. The astringent quality of the plant is due to the biological activities of its Polyphenols and Tannin. The presence of considerable amounts of Polyphenols and Tannin in the galls and in the dried extract of *Q. infectoria* shows its effectiveness when the extract is added into rectal creams in order to help treat the anal fissure.

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Determination of 10-hydroxy -2-decenoic acid in pure Iranian royal jelly by HPLC method

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Abstract

Royal jelly (RJ) is generally regarded as the major reason of the significant morphological and functional differences between queen and worker bees. The unique and chemically most interesting feature of RJ is its fatty acids. RJ fatty acids are short-chained, 8-10 carbon free acids that are usually either hydroxy fatty acids or dicarboxylic acids. The major fatty acid in RJ is 10-hydroxy-2-decenoic acid (10-HDA) and the amount of this fatty acid in Pure RJ varies depending on the origin of the jelly and characteristics of the bee.

Even other bee products do not contain 10-HDA. Thus, the presence of 10-HDA can be used as a marker to differentiate RJ from other bee products.

The pure RJ samples from different region of Iran and three RJ capsules from China, Australia and Canada were purchased. The obtained crystals, 10-HDA standard from pure RJ were analyzed by RP-HPLC. The eluent was CH₃CN-THF-H₂O (50.4:21.6:26 v/v/v with pH=2.5). The flow-rate and wavelength were adjusted at 1 ml/min and 215 nm respectively.

A LC run 30 min was conducted so that no other peaks were present. The external calibration method was used for determination of 10-HDA in samples. The R² value for calibration curve was 0.998. The amounts of 10-HDA found in RJ samples was between 0.75 and 2.54%. The minimum recovery determined found to be 98%.

The results show that 10-HDA crystals are pure and the method can be used for RJ evaluation.

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Purification and identification of 10-hydroxy-2-decenoic acid from pure royal jelly

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Abstract

The chemical nature of the royal jelly (RJ) has received considerable attention over the past 20 years. Genc and Aslan reported the determination of Trans-10-hydroxy-2-decenoic acid (10-HDA) content in pure Royal Jelly and royal jelly products by column liquid chromatography. Antinelli et al. confirmed this method and evaluated 10-Hydroxy-2-decenoic acid presence as a freshness parameter for Royal Jelly by HPLC. The aim of this study was isolation and identification of 10-HDA from mixture of carboxylic acids in royal Jelly.

Pure Royal jelly was extracted with ether for 26 hours. The resulting extract was concentrated to 200 ml. Carboxylic acids, as sticky solid, were separated by liquid-liquid extraction with pH variation then 10-HDA was separated by crystallization method.

The results of melting point and infrared tests confirm the purification of the compound. M.P=64°C IR: 3390, 1710, 1658 and 976 Cm^{-1} .

The pure 10-HDA obtained by this method can be utilized for evaluation of different royal jellies.

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Investigation on chemical constituents of essential oils from *Achillea mellifolium* L. subsp. *mellifolium* by distillation methods

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Abstract

The composition of the oils from flower and leaf of *Achillea mellifolium* L. subsp. *mellifolium* were collected during the flowering period from Lar area to Damavand mountain, altitude 3400 m in July 2003. The essential oils obtained by different methods of distillation (steam distillation and hydro-distillation), the percentage of oils for flower and leaf by steam distillation were 0.2 and 0.05% and by hydro-distillation were 0.4 and 0.04% respectively, based on the dry weight calculation.

Analysis by GC and GC/MS showed that the major constituents by hydro-distillation in flower were p-cymene (19.8%), n-heptanol (15.2%) and bornyl acetate (12%) in leaf p-cymene (24.1%), n-heptanol (11.1%) and camphor (5.9%) and by steam distillation in flower were (E)-isoeugenyl acetate (18%), n-heptanol (16.3%), bornyl acetate (16.2%) and p-cymene (9.3%) in leaf (Z)-isodemicin (16%), (E)-isoeugenyl acetate (14.9%), nootkatin (13%) and longifolene (11.8%), respectively.

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Phytoestrogens: recent developments

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Abstract

Phytoestrogens are polyphenolic non-steroidal plant compounds with estrogen like activity exerted through estrogen receptors. These receptors are distributed in several tissues such as male and female reproductive systems, bones, cardiovascular and central nervous systems. These natural phenolic compounds include isoflavonoids, flavonoids, lignans and stilbenes.

Isoflavonoids are the most studied group of phytoestrogens, which can be found in the family leguminosae such as soybeans, alfalfa and clover. Daidzine and genistein are the principal isoflavonoids, which are found in plants as glycoside derivatives. These compounds can be metabolized in the digestive tract by normal microflora to their corresponding aglycones. The aglycones are absorbed through non-ionic passive diffusion. After absorption, they are readily conjugated with glucuronic acid and excreted in urine.

Isoflavonoids have a good binding affinity for estrogen receptors (ER α and ER β) but they activate the intracellular mechanism (such as transcription and protein synthesis) less than steroidal estrogen. The estrogen receptor relative binding affinities of isoflavonoids when tested decreased in the following order:

17 β -estradiol > coumestrol > genistein > equal > daidzine

Nowadays, the relation between various diseases and estrogens are clearly identified. At menopause, the secretion of estrogens is reduced and as a result, osteoporosis, cardiovascular diseases (CVD) and menopausal symptoms occur. For the treatment of such conditions, estrogen is used but estrogen therapy may increase the risk of breast cancer.

Isoflavonoids can be bonded to estrogen receptors and regulate LDL-receptor activity and can also suppress the osteoclasts in the bone tissue and reduce the risk of osteoporosis. Therefore, these compounds can be recommended to prevent the menopausal symptoms. Isoflavonoids can also be used in estrogen related cancers. These compounds may inhibit the 5 α -reductase enzymes, decrease production of androgens, and so reduce the risk of prostate cancer. Furthermore, they can activate the estrogen receptors less than estrogenic compounds. Therefore, they can be used in estrogen-dependent breast cancers.

In addition to enzyme inhibition activities, isoflavonoids at very high concentrations have anti-angiogenesis and antioxidant effects.

The most important adverse effect of isoflavonoid is infertility syndrome in animals. The suppression of immune system is also reported.

The aim of the article is to review the chemical structures, biological effects, therapeutic uses and adverse effects of phytoestrogens.

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Structure elucidation and chemistry of novel diterpenoids from *Euphorbia* plants of Iran

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Abstract

Plants of the genus *Euphorbia* have been investigated for different bioactive natural products. I have isolated several new and bioactive diterpenoids from different species of *Euphorbia* of Iran with myrsinane type skeleton.

The structure of the compounds was determined using high resolution mass spectroscopy, 1 D and 2 D NMR spectral data. The stereochemistry of the diterpenoids was determined by NOE difference spectroscopy and ROESY spectra.

Myrsinane type diterpenoids and cycloartane type triterpenoids were found to be chemotaxonomically important constituents of the *Euphorbia* plants of Iran.

Some of the diterpenoids showed enzyme inhibitory activity against alpha-glycosidase, prolyl endopeptidase, analgesic activity, DNA damaging activity and anti-HIV-1 reverse transcriptase.

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Identification and determination of hypericin in *Hypericum perforatum*'s products in Iran's market

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Abstract

The intention of this research is qualitative and quantitative study of *Hypericum perforatum*'s products. The main use of this plant is for treatment of depression. Furthermore, it has anti-inflammatory, antispasmodic, antiviral, sedative and anti-migraine activities. Hypericin, which is one of the effective compounds of this plant, has antidepressant effect and it has been evaluated in this research.

According to the British Pharmacopeia in this process THF (Tetra Hydro Furan, 80%) was used as solvent. The qualitative study was done with TLC (Thin Layer Chromatography) method and quantitative measuring was determined by the spectrophotometric method. The absorbance measured at 590 nm.

According to the methods mentioned in the design section the content of total hypericins that can be expressed as hypericin is 0.008 percent in product A and 0.01 percent in product B. Under the TLC method, the products contain a variety of components such as Hypericin, Hyperoside, Flavonoglycoside, and Phenolcarboxylic acid that demonstrate the existence of *Hypericum perforatum*.

The amount of the measured Hypericin in the products is within the effective dose for Hypericin stated in the references. Based on the results of this study, the amount of the Hypericin measured in the products does not conform to the amount of Hypericin claimed in the brochure. It seems that the process of integrating the effective compounds is the cause of this incompatibility. Probably the amount of Hypericin in the products decreases before the expiration date printed on the label, although it is still in the effective range.

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Callus culture of *Echium amoenum* Fisch. & Mey. and its major secondary metabolite

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Abstract

Echium amoenum Fisch. & Mey. (Boraginaceae) is a very popular medicinal plant that is used as a tonic, tranquilizer, diaphoretic, and a remedy for cough, sore throat and pneumonia in traditional medicine of Iran.

Callus culture of medicinal plants is one of the ways for production of secondary metabolites. In this study, we investigated callus culture of *E. amoenum* and the major secondary metabolite.

The callus culture of *E. amoenum* was initiated and established from seed in MS media with three different ratio of plant growth regulatories: kinetin, 2, 4-D and NAA. Methanolic extracts of freeze-dried calluses was compared by TLC and HPLC. The major secondary metabolite was separated by preparative HPLC and this pure compound was elucidated by UV, IR, one and two dimensional 1H and 13C NMR and Mass spectroscopy.

Rosmarinic acid was identified by various spectroscopic methods from callus culture of *E. amoenum*. Rosmarinic acid is widespread in the plant cell tissue culture of the Lamiaceae and Boraginaceae families, through insignificant quantities. Rosmarinic acid has an antimicrobial, antiviral, and anti-inflammatory effect, which makes it a valuable product for the pharmaceutical and cosmetic industries.

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Essential oil of *Galium verum* L. from Iran

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Abstract

The chemical composition of the essential oil obtained from aerial parts of *Galium verum* L. (Rubiaceae) from Iran was examined by a combination of GC and GC/MS. The oil isolated by hydro-distillation using a Clevenger-type apparatus.

Air-dried aerial parts of *Galium verum* (80 g) which were collected from Bomehen in Tehran province at full flowering stage on May 2003, were subjected to hydro-distillation for 3 h using a Clevenger-type apparatus to produce oil in 1.3% (w/w) yield. The oil was dried over anhydrous sodium sulphate and stored under nitrogen in a sealed vial till analysis. The oil was analyzed by a combination of GC (shimadzu GC-9A) and GC/MS (Varian 3400, Saturn II).

The oil isolated by hydro-distillation from the aerial parts of *Galium verum* was obtained with a yield of 1.3% (w/w), based on the dry weight. Twenty-three components were identified in the essential oil of *Galium verum* representing to more than 93% of the oil, the major components of which were found to be β -caryophyllane (26%), caryophyllene oxide (16.2%), and Germacrene D (11.2%).

The qualitative composition and quantitative content of polyphenol components of five galium species of *Galium* has been reported previously, these species have their highest content of flavonoides and tanning agents at the start of growth. The species contain carbohydrates and amino acids. A literature search did not reveal any reference to previous work on the essential oil of *Galium verum*.

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Volatile constituents of *Jasminum humile* L.

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Abstract

The essential oil was obtained by hexan. The sample oil, which was light yellow in color, was dried over anhydrous sodium sulfate and stored under nitrogen in a sealed vial until required. The oil obtained was analyzed by GC-MS and GC/MS. The components of the oil were identified by comparison of their mass spectra to those of a computer library or with authentic compounds and confirmed by comparison of their retention indices, either those of authentic compounds or data published in the literature.

The essential oil was isolated by steam distillation from flowers of cultivated *Jasminum humile* in Iran. It was analyzed by GC-MS and GC/MS. Among eighteen identified compounds, the major components were (Z)- β -ocimene (27.7%), p-cymene (13.3%), α -pinene (13.1%) and carvone (12.2%). Other compounds present in appreciable amounts are γ -terpinene (8.4%), fenchol (7.3%), linalool (6.1%) and fenchone (3.6%).

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Chemical composition of the oil of *Chenopodium ambrosioides* L. from Iran

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Abstract

Hydro-distilled volatile oil from the aerial parts of *Chenopodium ambrosioides* L. (Chenopodiaceae) was obtained and the oil was analyzed by a combination of GC and GC/MS.

Air-dried aerial parts of *Chenopodium ambrosioides* (100 g) which were collected from Anzaly in Mazandaran province at full flowering stage on June 2003, were subjected to hydro-distillation for 3.5 h using a Clevenger-type apparatus. The oil was analyzed by a combination of GC (shimadzu GC-9A) and GC/MS (Varian 3400, Saturn II).

The oil was isolated by hydro-distillation from the aerial parts of *Chenopodium ambrosioides*. It was found to be a yellow liquid, obtained in a yield of 1.8% (w/w), based on the dry weight. Eleven components were identified in the essential oil of *Chenopodium ambrosioides* representing more than 91.2% of the oil, the major components were found to be sabinene hydrate acetate (55%), α -terpinene (23.8%) and p-cymene (15.5%).

The essential oil composition of *C. ambrosioides* has been reported previously. The major components of *C. ambrosioides* from Cuba were α -terpinyl acetate (73.9%) and p-cymene (4.3%). The essential oil from this plant from Nigeria contained α -terpinene (56%), α -terpinyl acetate (15.7%) and p-cymene (15.5%). The main compound of *C. ambrosioides* from Japan was pinocarveol and from Rwanda was α -terpinene. These results show variation between chemical composition of different localities of *C. ambrosioides*.

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Chemical constituents of the leaf and flower oils from *Anthemis altissima* L. var. *altissima* from Iran

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Abstract

About 130 species of genus *Anthemis* occur throughout the world. Thirty-nine of them could be found in flora of Iran. According to literature, this species was not the subject of research up to now and therefore its chemical composition is not well known. However, flavonoids, polyphenolic acids, terpene and sesquiterpene compounds were reported to be the major constituents of some other species of the genus *Anthemis*. Chemical data concerning the qualitative and quantitative composition of *Anthemis altissima* oil are presented here for the first time. According to literature, oils of *A. ruthenica*, *A. carpatica*, *A. montana* have been extensively studied.

Anthemis altissima var. *altissima* Growing wild in North Iran [Elburz area: Ghameshahr, Pole-Sefid, 300 m, Mozaffarian 80548 (TARI)] was collected in 18 July 2001. The plant specimen was determined by Iranian Botanical Garden (IBG) staff.

About 50 g leaves and 168 g flowers were separated and subjected to separate hydro-distillation using a Clevenger-type system. The oil yields obtained were leaves 0.25% and flowers 0.15% on a fresh weight basis.

The volatile constituents of *Anthemis altissima* L. var. *altissima* were isolated by hydro-distillation and analyzed by GC and GC/MS. The major constituents of *A. altissima* flower oil were spathulenol (18.7%), caryophyllene oxide (9.3%), 1-eicosene (7%) and sabinene (6.2%), while the leaf oil contained spathulenol (18.2%), caryophyllene oxide (9.5%), methyl hexadecanoate (8%) and isocaryophyllene (7.4%).

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Comparative study on inorganic elements of different genotypes of *Rosa damascena* Mill. from different provinces of Iran

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Abstract

Contents of inorganic elements are very important traits in plants. Some of elements have causal effects on plant growth. Their effects on plant metabolism and therefore quality and quantity of essential oils is crucial. Thus, to obtain relatively good results, different parts of *Rosa damascena* Mill. genotypes were analyzed.

Plants were collected from different provinces including Tehran, East Azarbaijan and Golestan. They were cultivated in Institute of Forests and Rangelands. Samples were collected in May 2003.

For determination and comparative study on inorganic elements like Na, K, Mn, Ca, Mg, Zn, Cu, P and N used different apparatus like Induced Coupled Plasma (ICP), Kjeltce and spectrophotometer. Results from different genotypes on petals and sepals of *Rosa damascena* Mill. from different states like Tehran, East Azarbaijan and Golestan were as follows: Na (127.4-160.4 ppm), K (24.48-35.88 ppm), Mg (9.11-10.61 ppm), Ca (60.54-65.41 ppm), Mn (0.073-0.094 ppm), Zn (0.162-0.35 ppm), Cu (0.207-0.30 ppm), P (0.19-0.28 mg/kg) and N (0.95-1.77%) in petals, and Na (110.2-277.7 ppm), K (25.72-38.53 ppm), Mg (12.36-24.27 ppm), Ca (57.63-196.3 ppm), Mn (0.105-0.185 ppm), Zn (0.156-0.62 ppm), Cu (0.166-0.32 ppm), P (0.23-0.39 mg/kg) and N (2.26-2.90%) in sepals.

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Honeybee: The flying pharmacist

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Abstract

Honeybee, a small -although powerful- creature moves from one place to another to make an elixir, which cures different diseases. To make one kilogram of honey the small creature has to carry 150000 pieces of pollen and suck the sap of ten million flowers.

Both honey and the honeybee poison have been used in treating diseases for thousands of years. The product made by such tiny creatures has been adored by the peoples of different lands and the divine books of different religions have appreciated honey. The traditional medicine books recommend honey for treating diseases such as toothache, cardiovascular diseases, arthritis, malnutrition, healing wounds, and so on. Honeybee poison has been advised for treating rheumatic diseases and arthritis and so forth.

Recent studies have shown that poison of the honeybee is a complicated jumble of enzymes, proteins and amino acids, while honey contains different minerals such as calcium, sulfur, potassium, manganese, and phosphorous. Honey also contains different amino acids, vitamins and sugar.

This article presents the cases where honeybee poison is used in traditional medicine and the researches conducted on honey and poison of honeybee during recent years.

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Identification and determination of flavonoids in leaf, dried aqueous and dried hydroalcoholic extract of *Artemisia absinthium* by HPLC

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Abstract

The aim of this study was preparation of a standard extract from the leaves of *Artemisia absinthium* in order to add into a suspension formula as a laxative agent for use in animal husbandry.

As approved by the commission E, the *Artemisia absinthium* preparations are used internally for loss of appetite, dyspeptic, liver, and gallbladder complaints. *A. absinthium* is commonly used in food industry in the preparation of aperitifs, bitters, and spirits and is of growing importance in agriculture and in pharmacology. The presence and determination of Quercetin and Isorhamnetin in the leaf extract of *A. absinthium* can justify its use in laxative preparations with plant origin.

Artemisia absinthium leaves were air-dried and minced at room temperature and extracted using ethanol and water as solvents according to a maceration method. The aqueous and hydroalcoholic extracts were dried up in vacuum. The flavonoids Quercetin and Isorhamnetin in leaves, dried aqueous, and hydroalcoholic extracts were identified and determined by means of a HPLC method. Quercetin and Isorhamnetin were present in 0.49 and 0.05 percent in leaves; 0.95, 0.08 percent in dried aqueous extract; 1.96 and 0.10 percent in dried hydroalcoholic extract respectively.

In this study, we report the presence of Quercetin and its 3'-methyl ether derivative known as Isorhamnetin in the leaves of *Artemisia absinthium* and quantifying them individually by HPLC. This will permit an estimation to be made of the laxative effect in terms of the hepatoprotective activity expected from the plant extract in appreciable quantities. The dried hydroalcoholic extract contained the highest amounts of Quercetin and Isorhamnetin compared to either leaf extract or dried aqueous extract. The procedures in this work can serve as an efficient quality control facility for monitoring the finished products.

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Identification and quantitative determination of flavonoids in the aerial parts of *Teucrium polium* by HPLC

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Abstract

Review of literature shows that large varieties of compounds have been found to bear hypoglycemic action. For instance, glycosides afford active principles that lower blood sugar in test animals. Following the I.V. administration of a 4 percent decoction of the dried *T. polium* herb, a definite reduction of blood sugar level has been exhibited. With reference to PDR for Herbal Medicines for the use of *T. polium* to reduce the blood sugar level, a hydroalcoholic extract was prepared and two major components were identified by HPLC. The extract was then used to evaluate its role on reducing blood sugar level upon clinical trails prior to the formulation and presentation as an oral drop to the market.

A hydroalcoholic extract (1:1) was prepared from the dried aerial parts, although the whole herb is medicinal. Two flavones (Luteolin and Apigenin) were identified with reference to standard materials by HPLC. The amount of Luteolin and Apigenin in the aerial parts and in the dried hydroalcoholic extract were reported as 0.027, 0.058 and 0.120, 0.210 percent (w/w) respectively.

There are only two common flavones, Apigenin and Luteolin, which are present and have been quantitatively determined in this study by HPLC. Apigenin is reported for its anti-bacterial, anti-inflammatory, diuretic, and hypotensive activities. It is also referred to as an anti-aggregant in terms of its biological activity. Luteolin inhibits lens aldose reductase and has anti-bacterial and anti-inflammatory activities. With the administration of aldose reductase inhibitors like Luteolin, it is possible to prevent sorbitol accumulation and diabetic cataract.

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Identification and quantitative determination of Luteolin and Apigenin in the aerial parts and an extract of *Stachys lavandulifolia* by HPLC

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Abstract

Stachys lavandulifolia is among the species that is used for immune disorders, applied topically, or taken orally as an herbal tea. The plant is also used for stomachache, anodyne, labor, and spasm. According to the results of a pharmacological survey, the extract of *Stachys lavandulifolia* from the aerial parts has shown to be effective in the improvement of patients suffering from anxiety disorders. Apigenin has been reported to bear anxiolytic and CNS-depressant effects. Therefore, a suitable extract of the plant aerial parts was prepared and clinically evaluated. Then the active constituents in the extract were identified and quantified by HPLC. The chemical composition of the plant has not yet been reported in scientific journals.

The amounts of Apigenin and Luteolin in the hydroalcoholic extract (2:1) were reported as 0.127 and 0.033 percent (w/w) respectively. The amounts of Apigenin and Luteolin in the dried aqueous extract were 0.106 and 0.416 percent (w/w), and in the aerial parts were 0.048 and 0.152 percent (w/w) respectively.

In this study, a suitable hydroalcoholic extract from the plants aerial parts was prepared by percolation. The extract contained 31.3 percent (w/w) of dried materials. Apigenin and Luteolin in the extract were identified with comparison to the standard materials by HPLC. When compared to the plant aerial parts, and dried aqueous extracts; the hydroalcoholic extract contained the highest amount of Apigenin and the lowest amount of Luteolin. Therefore, the hydroalcoholic extract gives the impression to be more effective in improving the patients suffering from anxiety disorders when taken orally in the form of oral drops.

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Extraction and determination of the main components of the essential oil of *Ducrosia anethifolia* by gc and gc/ms

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Abstract

Ducrosia anethifolia is used to improve the smell of foods and drinks. It is also used as fodder for sheep and camel. It is used to treat catarrh, headache, and backache in folk medicine. The herb is also reported to relax the mind and body and induce a peaceful sleep. The aim of this study was to extract the essential oil from the herb and determine its main components by GC and GC/MS and to study the Anti-insomnia effect of the herb.

Capillary GC was performed using a Varian Gas Chromatograph model CP-3800, and a computerized GC/MS system. The identification of the components were assigned on the basis of standard samples on CP-Sil 8 CB, 60 M×0.32. Additional information was assigned by GC/ MS and comparison of the spectra obtained from the literature.

Among the componenets that were identified in the essntial oil of *Ducrosia anethifolia* are α -Pinen, Citronellal, Limonene, Linalool, and Myrcene with a total of 15.54 percent calculated from the peak areas without correction factor.

They are all contributed to the desired activity effect of the oil like CNS-depressant, myorelaxant, narcotic, sedetive, and tanquilizer activity. All of these activities are included in insomnia and play an important rule in the anti-insomnia ability of the herb. The details will be presented in the 2nd International Congress on Traditional Medicine & Materia Medica.

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Two new isoquinolone Alkaloids from *Sauropus hirsutus*

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Abstract

Sauropus androgynus (Euphorbiaceae) is a popular vegetable in Thailand. In 1995, the plant was associated with several cases of poisoning when used in a Taiwanese weight control method and the toxicity was attributed to its alkaloid content. We have therefore investigated a closely related *Sauropus* species, *S. hirsutus*.

Extraction and isolation of chemical constituents from the aerial part of *S. hirsutus* was performed by means of various chromatographic techniques.

Two new isoquinolone alkaloids named sauropine A [4-methoxy-2-methyl-7, 8-methylenedioxy-1 (2H)-isoquinolone] and sauropine B [4, 6-dimethoxy-2-methyl-7, 8-methylenedioxy-1 (2H)-isoquinolone] were isolated from the chloroform fraction. The presence of isoquinoline alkaloids as the major constituents in a *Sauropus* species was confirmed. Exhaustive phytochemical studies of *Sauropus* would substantiate this finding and provide concrete and useful chemotaxonomic information on this interesting plant genus.

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Essential oil composition and antimicrobial activity of *Salvia sahendica* Boiss & Buhse. in different phenological stage

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Abstract

The objective of this study was the isolation and identification of essential oil constituents of *Salvia sahendica*. The antimicrobial activity of the essential oil was also investigated.

The aerial parts of the plant were collected in different phenological stages in 2004 from Sahand Mountain (East Azerbaijan Province, Tabriz). The essential oil of *S. sahendica* was isolated by hydro-distillation in vegetative, floral budding and full flowering stages. Oils were analyzed by GC and GC/MS methods. The components of the oil were identified by comparison of their mass spectra with those of a computer library or with authentic compounds and confirmed by comparison of their retention indices, either with those of authentic samples or with data published in the literature.

Antibacterial activities of the essential oils were tested against seven Gram-positive and Gram-negative bacteria and evaluated by disc diffusion method using Mueller-Hinton agar with determination of inhibition zones.

In all samples α -pinene, β -pinene, bicyclogermacrene, sabinene and linalool were the major components but with slightly different percentages.

The result of bioassay showed that the oil inhibited the growth of all examined bacteria except for *Pseudomonas aeruginosa* that was resistant to oil samples.

The essential oil composition and the observed antibacterial properties show that the oil has a good potential for use in aromatherapy and pharmacy, and support the popular uses of this plant in the folk medicine in Iran.

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Chemical composition of the essential oil of two Iranian *Satureja* species (*S. edmondi* and *S. isophylla*)

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Abstract

Satureja genus presents 12 aromatic species in Iran, eight of which are endemic. Because of the several usages of *Satureja* species or their oils in different industries, we were interested to study the oil content and composition of Iranian *Satureja* species. In this research, the essential oil content and composition of two endemic species (*S. edmondi* and *S. isophylla*) were investigated.

Essential oils from aerial parts of *Satureja edmondi* Briquet and *Satureja isophylla* Rech. f. were obtained by hydro-distillation. The oils were analyzed by capillary gas chromatography, using flame ionization and mass spectrometric detection. The components were identified with their mass spectrum and retention indices.

Thirty components were identified in the oil of *S. edmondi* with p-cymene (61.1%), gamma-terpinene (9.6%), thymol (5.0%) and alpha-terpineol (4.8%) as main constituents. Fifty-six compounds were identified in the oil of *S. isophylla* with alpha-eudesmol (11.3%), beta-eudesmol (9.6%), camphor (7.1%), beta-caryophyllene (6.1%), gamma-eudesmol (5.8%) and geranial (5.5%) as main components. The results showed different composition of the essential oils of these *Satureja* species.

The oil content and composition of these *Satureja* species were studied for the first time. We have studied some of the other *Satureja* species oils previously. This study showed the sharp differences between the oils of these two species with other *Satureja* species that will be presented completely.

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Global information hub on integrated medicine: Malaysia strategic initiative

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Abstract

The increasing global interest on traditional and complementary medicine (T/CM) and a need of a centralised and validated information on T/CM, added with a noble mission of optimally integrating the practice of T/CM into the mainstream healthcare system, revolutionised this Commonwealth health minister's initiative project. Combined with strong government support and strength in ICT infrastructure at Multimedia Super Corridor, Malaysia put forward the proposal at the last Commonwealth Health Minister meeting which finally get the endorsement for implementing the project at the pre-WHA meeting 2002. This web portal aims in promoting and enhancing the practice of T/CM through global communication and smart partnerships, was implemented by the Herbal Medicine Research Centre of the Institute for Medical Research assisted by the beta group committee. Fondly referred to as the InfoHub, it will deliver validated, up-to-date and comprehensive information of T/CM to the world. Thus, the establishment of Integrated Medicine together with Allopathic Medicine towards contemporary health care can be achieved. The prototype, www.Globinmed.com was successfully launched in October 2003 have Malaysia information on Policy, Trade, Intellectual Property Rights and Herbal Databases, whereas the first international partner, NHIondemand provide other content including Traditional Chinese Medicine, Dietary Supplement Monograph, and Health Condition & Disease States. To achieve its establishment, more contents are being planned and Malaysia is cordially inviting other countries to form a strategic partners not only to enrich its content, but also improved the information portal to ensure its remain viable and competitive internationally.

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