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## Study at Iran Herbal medicine

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### ABSTRACT

Herbal medicine is one of the oldest forms of medical treatment in human history and could be considered one of the forerunners of the modern pharmaceutical trade. Plants that have medical uses can be found growing in many settings all over the world. Iran with 1.64 million km<sup>2</sup> areas has 7500-8000 plant species. Iran is an ancient country in usage of herbal plants. The ancient Persians soon became familiar with various medicinal plants. Several medicinal species are cultivated in Iran. This review focuses on some of these plants such as Ziziphora, Stachys, Satureja, Thymus, Scrophularia, Thymbra, Tanacetum, Ocimum and Crocus. Herbal medicine treats disease and promotes health with plant material. For centuries, herbal medicines are the primary methods to administer medicinally active compounds. Use of naturally occurring substances, usually of plant origin, in the prevention and treatment of disease, Western herbal medicine is based on the use of botanicals commonly available in North America and Europe. Herbal medicine is the study and use of medicinal properties of plants. We show that About three hundred Stachys species are reported; 34 of them are found in Iran, of which 13 are endemic. Several Stachys species are used in Iranian folk medicine as medicinal plants. In addition, pharmacological studies confirmed that extracts or components of plants belonging to the genus Stachys exert significant antibacterial, anti-inflammatory, antitoxic and antianoxia effects The present total species diversity index H represent that plants belonged that 71 1.27 species, 41 families. Cultivated crops have 24 species 2.40 and 11 families. The weeds had 57 species 1.51 and 23 families. The birds had 37 species 1.89 and 24 families, other aquatic faunal species 17 2.66 and 16 families. In the biodiversity of semnan iran was decreasing day by day. Agricultural crops and other aquatic fauna were listed maximum but plants, and weeds diversity index were minimum.

**Keywords:** medicinal plants. Iran, plant materials

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## INTRODUCTION

Many of the herbs and spices used by humans to season food also yield useful medicinal compounds. The use of herbs and spices in cuisine developed in part as a response to the threat of food-borne pathogens. Studies show that in tropical climates where pathogens are the most abundant, recipes are the most highly spiced. Further, the spices with the most potent antimicrobial activity tend to be selected. In all cultures, vegetables are spiced less than meat, presumably because they are more resistant to spoilage. Many of the common weeds that populate human settlements, such as nettle, dandelion and chickweed, also have medicinal properties. BAILEY 1949<sup>1</sup>.

Plants have been used for medicinal purposes for as long as history has been recorded. China, India, Egypt, and Assyria appear to have been the places which cradled the use of herbs, but herbalism was common in Europe by medieval times. Despite the progress in orthodox medicine, interest in alternative medicine, including herbalism, is on the increase in the West and for 80% of the world herbal medicine is still the only kind to which ordinary persons have ready access PENSO 1978<sup>2</sup>.

A great variety of plants are used for medicinal treatments. Either the dried plant, or a specific part of it (root, leaves, fruit, flowers, seeds), is formulated into suitable preparations compressed as tablets or made into pills, used to make infusions (teas), extracts, tinctures, etc., or mixed with excipients to make lotions, ointments, creams, etc. Few herbal drugs are subject to legislative control. Obviously control is needed for poppy capsules (which contain opium), belladonna, digitalis, nux vomica beans (which contain strychnine), and rauwolfia (which contains reserpine). Most herbal remedies are freely available, although rarely have any been investigated with the thoroughness of orthodox medicines. PERRY. & J. METZGER 1980<sup>3</sup>

The claims made for many herbal remedies are for trivial or minor ailments, due partly to the strictures put on legal claims for efficacy, and partly because herbalists claim to treat the whole person to restore normal physiological balance, rather than to treat or cure a particular medical illness. Activities of herbal medicines are often described in very general terms — such as carminative, laxative, demulcent, antitussive, expectorant, sedative, antiseptic, or astringent. Unlike orthodox medicines, which usually consist of a single, isolated principle (often synthetic), plants or extracts of plants contain multiple constituents, not all of them active. Herbalists often claim that the admixture of multiple constituents leads to synergism between the active moieties. Similarly, many consider that since plants are natural materials they are safer and will produce fewer side-effects than synthetic drugs. There is little substance or reason in either of these claims. For example, comfrey (*Symphytum officinale*) is

considered a safe herb and is used as a demulcent. However, it contains pyrrolizidine alkaloids, which are toxic to the liver and can cause liver cancer. Media attention can often cause a major increase in the demand and use of herbal drugs — for example, evening primrose oil, feverfew, Ginko biloba, and ginseng. One of the problems with herbal drugs, especially those with active principles which have well-defined medicinal effects (e.g. digitalis), is that the amount of active principle(s) varies according to the location where the plant is grown, the prevailing weather conditions, etc., so it is vital in these instances that the crude material is assayed appropriately so that the dosage can be accurately controlled, especially where the therapeutic ratio is low. (Therapeutic ratio is the ratio of the dose causing toxic effects to that required for treatment.) WATT & BREYER-BRANDWIJK, M.G. 1962<sup>4</sup>

From time to time, new drugs are discovered from herbal sources — for example, *taxol*, derived from the yew, is an important drug for some forms of cancer. The active principle is extracted and purified from plant material for as long as that process remains economically viable compared with chemical synthesis.

Herbal medicine, use of natural plant substances (botanicals) is to treat and prevent illness. The practice has existed since prehistoric times and flourishes today as the primary form of medicine for perhaps as much as 80% of the world's population. Over 80,000 species of plants are in use throughout the world. Along with acupuncture, herbal medicine is considered primary health care in China, where it has been in documented use for over 2,500 years.

Herbs may be used directly as teas or extracts, or they may be used in the production of drugs. Approximately 25% of the prescription drugs sold in the United States are plant based. Many more herbal ingredients are present in over-the-counter drugs, such as laxatives. Medicines that come from plants include aspirin from willow bark (*Salix* species) and digitalis from foxglove (*Digitalis purpurea*) . DALZIEL 1937<sup>5</sup>

Scientific interest in herbal medicine in the United States has lagged behind that in the countries of Asia and West Europe; in Germany, for example, one third of graduating physicians have studied herbal medicine, and a comprehensive therapeutic guide to herbal medicines has long been published there. Nonetheless, millions of people in the United States use herbal products to treat a wide variety of ailments or to enhance health. Among the more popular remedies used are ginseng, to increase stamina and as a mild sedative; St.-John's-wort, for mild depression; echinacea, to aid the immune system and alleviate colds; kava, to calm anxiety and treat insomnia; saw palmetto, for enlarged prostate; and ginkgo biloba, to

improve short-term memory (see ginkgo). Some people have used botanicals in an attempt to stave off serious illnesses such as AIDS.

This widespread use has prompted demands that herbal remedies be regulated as drugs to insure quality standards. The U.S. Food and Drug Administration (FDA) can require a clinical trial on any herb that has a health claim on its label, but medical testing, which is geared toward observing a particular active component, is difficult to apply to herbs, which may have many interacting ingredients. Debate over botanicals' validity and safety as medicines and over the appropriate degree of government regulation continues. The Dietary Supplement Health and Education Act passed in 1994, reclassified herbs as dietary supplements rather than food additives. It forbids unreasonable health claims by the manufacturers, but makes it the FDA's responsibility to prove that a marketed product is unsafe. (In contrast, in prescription and over-the-counter drugs, it is the manufacturer's responsibility to prove safety and effectiveness before a drug can be marketed.)

Another concern surrounding herbal medicine is the availability of wild plants for a growing market; it is feared that the limited supplies of known wild herbs are being threatened by overharvesting and habitat loss. The potential of isolating beneficial drugs from plants, however, has prompted large pharmaceutical companies to contribute to the conservation of the tropical rain forest. Biologists have called for more careful study of medicinal plants, especially regarding their capacity for sustainable harvesting and the effects of cultivation on their efficacy as medicaments.



**Figure 1: The bark of willow trees contains large amounts of salicylic acid, which is the active metabolite of aspirin. Willow bark has been used for millennia as an effective pain reliever and fever reducer.**

The history of studying and working with medicinal plants is quite long. Many chemists are interested in studying plants that have not been researched before, to identify which compounds in the plants are active and to see how those compounds work. Usually, the goal

is to develop a synthetic version of the compound that can be easily produced in a lab and packaged in pharmaceutical preparations. Chemists may also be interested in historic medical treatments, examining plants to see whether or not preparations used historically would have worked, and if they would have, how they would have worked. Preparations made from these plants are available for sale in many health food stores and through the offices of naturopaths, practitioners of Ayurveda and traditional Chinese medicine, and other alternative health care providers. Some preparations are widely used in the conventional medical community as well; preparations, for example, are commonly used to treat burns FRANCIS 1951<sup>6</sup>

## MATERIALS AND METHOD

The study area is located within the semnan city at approximately between the latitudes 35.5728° N, 53.3972° E of District in the semnan division of Iran. The study was conducted for a period of July to October, 2015. Semnan is a city in Iran. The city's population is 124,999. The stright distance between Semnan and Tehran is 111 miles (179 kilometers).

### **Herbal philosophy and spiritual practices**

As Eisenburg states in his book, *Encounters with Qi*: "The Chinese and Western medical models are like two frames of reference in which identical phenomena are studied. Neither frame of reference provides an unobstructed view of health and illness. Each is incomplete and in need of refinement." Specifically, the traditional Chinese medical model could effect change on the recognized, and expected, phenomena of detachment to patients as people and estrangement unique to the clinical and impersonal relationships between patient and physician of the Western school of medicine.

Four approaches to the use of plants as medicine include:

1. The magical/shamanic—Almost all non-modern societies recognize this kind of use. The practitioner is regarded as endowed with gifts or powers that allow him/her to use herbs in a way that is hidden from the average person, and the herbs are said to affect the spirit or soul of the person.
2. The energetic—This approach includes the major systems of Traditional Chinese Medicine, Ayurveda, and Unani. Herbs are regarded as having actions in terms of their energies and affecting the energies of the body. The practitioner may have extensive training, and ideally be sensitive to energy, but need not have supernatural powers.
3. The functional dynamic—This approach was used by early physiomedical practitioners, whose doctrine forms the basis of contemporary practice in the UK. Herbs have a functional action, which is not necessarily linked to a physical compound, although often to a physiological function, but there is no explicit recourse to concepts involving energy.

4. The chemical—Modern practitioners - called Phytotherapists - attempt to explain herb actions in terms of their chemical constituents. It is generally assumed that the specific combination of secondary metabolites in the plant are responsible for the activity claimed or demonstrated, a concept called synergy.

Herbalists tend to use extracts from parts of plants, such as the roots or leaves but not isolate particular phytochemicals. Pharmaceutical medicine prefers single ingredients on the grounds that dosage can be more easily quantified. It is also possible to patent single compounds, and therefore generate income. Herbalists often reject the notion of a single active ingredient, arguing that the different phytochemicals present in many herbs will interact to enhance the therapeutic effects of the herb and dilute toxicity. Furthermore, they argue that a single ingredient may contribute to multiple effects. Herbalists deny that herbal synergism can be duplicated with synthetic chemicals. They argue that phytochemical interactions and trace components may alter the drug response in ways that cannot currently be replicated with a combination of a few putative active ingredients. Pharmaceutical researchers recognize the concept of drug synergism but note that clinical trials may be used to investigate the efficacy of a particular herbal preparation, provided the formulation of that herb is consistent IRVINE 1961<sup>7</sup>.

In specific cases the claims of synergy and multifunctionality have been supported by science. The open question is how widely both can be generalized. Herbalists would argue that cases of synergy can be widely generalized, on the basis of their interpretation of evolutionary history, not necessarily shared by the pharmaceutical community. Plants are subject to similar selection pressures as humans and therefore they must develop resistance to threats such as radiation, reactive oxygen species and microbial attack in order to survive. Optimal chemical defenses have been selected for and have thus developed over millions of years. Human diseases are multifactorial and may be treated by consuming the chemical defences that they believe to be present in herbs. Bacteria, inflammation, nutrition and ROS (reactive oxygen species) may all play a role in arterial disease. Herbalists claim a single herb may simultaneously address several of these factors. Likewise a factor such as ROS may underlie more than one condition. In short herbalists view their field as the study of a web of relationships rather than a quest for single cause and a single cure for a single condition.

In selecting herbal treatments herbalists may use forms of information that are not applicable to pharmacists. Because herbs can moonlight as vegetables, teas or spices they have a huge consumer base and large-scale epidemiological studies become feasible. Ethnobotanical studies are another source of information. For example, when indigenous peoples from

geographically dispersed areas use closely related herbs for the same purpose that is taken as supporting evidence for its efficacy UNCTAD/GATT 1974<sup>8</sup>

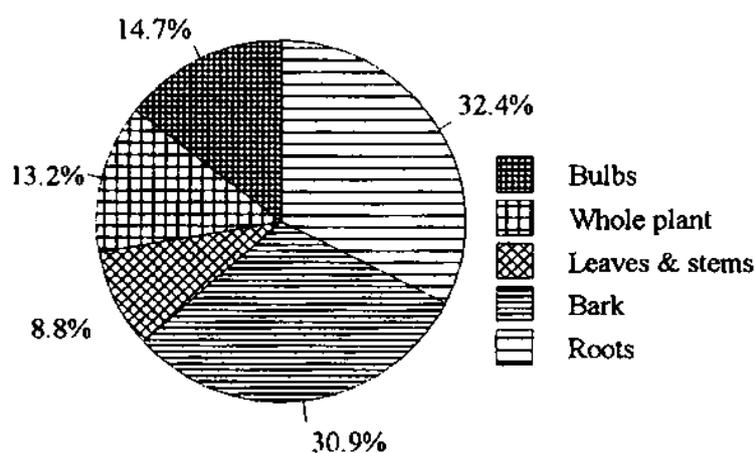
Herbalists contend that historical medical records and herbals are underutilized resources. They favor the use of convergent information in assessing the medical value of plants. An example would be when in-vitro activity is consistent with traditional use FAO 1981<sup>9</sup>.

#### Uses of herbal medicines by animals

Indigenous healers often claim to have learned by observing that sick animals change their food preferences to nibble at bitter herbs they would normally reject. Field biologists have provided corroborating evidence based on observation of diverse species, such as chickens, sheep, butterflies, and chimpanzee. The habit has been shown to be a physical means of purging intestinal parasites,. Lowland gorillas take 90% of their diet from the fruits of *Aframomum melegueta*, a relative of the ginger plant, that is a potent antimicrobial and apparently keeps shigellosis and similar infections at bay. Current research focuses on the possibility that this plants also protects gorillas from fibrosing cardiomyopathy which has a devastating effect on captive animals.

Researchers from Ohio Wesleyan University found that some birds select nesting material rich in antimicrobial agents which protect their young from harmful bacteria.

Sick animals tend to forage plants rich in secondary metabolites, such as tannins and alkaloids. Since these phytochemicals often have antiviral, antibacterial, antifungal and antihelminthic properties, a plausible case can be made for self-medication by animals in the wild.



**Figure 2: Plant part used for important market species**

Some animals have digestive systems especially adapted to cope with certain plant toxins. For example, the koala can live on the leaves and shoots of the eucalyptus, a plant that is dangerous to most animals. A plant that is harmless to a particular animal may not be safe for humans to ingest. A reasonable conjecture is that these discoveries were traditionally

collected by the medicine men of indigenous tribes, who then passed on safety information and cautions.



**Figure 3: Map of Iran's major crops**

### **Extinction of medicinal plant species**

Because "over 50% of prescription drugs are derived from chemicals first identified in plants, a 2008 report from the Botanic Gardens Conservation International (representing botanic gardens in 120 countries) warned that "cures for things such as cancer and HIV may become 'extinct before they are ever found'." They identified 400 medicinal plants at risk of extinction from over-collection and deforestation, threatening the discovery of future cures for disease. These included Yew trees (the bark is used for the cancer drug paclitaxel); Hoodia (from Namibia, a potential source of weight loss drugs); half of Magnolias (used as Chinese medicine for 5,000 years to fight cancer, dementia and heart disease); and Autumn crocus (for gout) GODIN & SPENSLEY 1971 , GOOR & BARNEY 1976<sup>10-11</sup>.



**Figure 4: The carotenoids in primrose produce bright red, yellow and orange shades. People consuming diets rich in carotenoids from natural foods, such as fruits and vegetables**

### **CONCLUSION**

Medicinal plants have many characteristics when used as a treatment, as follow: Synergic medicine- The ingredients of plants all interact simultaneously, so their uses can complement or damage others or neutralize their possible negative effects.

**Table 1: Different Medical Plant species observed selected in the Iran area**

Scientific name	Family name	Habit
<i>Pongamia pinnata</i>	Leguminoseae	Swamp Tree
<i>Barringtonia acutangula</i>	Lecythidaceae	Swamp Tree
<i>Crataeva nurvala</i>	Capparidaceae	Swamp Tree
<i>Bombax ceiba</i>	Bombacaceae	Tree
<i>Lagerstroemia speciosa</i>	Lythraceae	Tree
<i>Erythrina variegata</i>	Papilionaceae	Tree
<i>Garuga pinnata</i>	Burseraceae	Tree
<i>Anthocephalus chinensis</i>	Rubiaceae	Tree
<i>Sterblus asper</i>	Urticaceae	Tree
<i>Samania saman</i>	Mimosaceae	Tree
<i>Dalbergia sissoo</i>	Papilionaceae	Tree
<i>Eucalyptus camaldulensis</i>	Myrtaceae	Tree
<i>Acacia auriculiformis</i>	Mimosaceae	Tree
<i>Dillenia scabrellarobx</i>	Dilleniaceae	Tree
<i>Swietenia macrophylla</i>	Meliaceae	Tree
<i>Ficus bengalensis</i>	Moarceae	Tree
<i>Albizia procera</i>	Mimosaceae	Tree
<i>Albizia lebbeck</i>	Mimosaceae	Tree
<i>Bambusa aurundinaceae</i>	Gramineae	Tree

Support of official medicine- In the treatment of complex cases like cancer diseases the components of the plants proved to be very effective.

- Preventive medicine- It has been proven that the component of the plants also characterize by their ability to prevent the appearance of some diseases. This will help to reduce the use of the chemical remedies which will be used when the disease is already present i.e., reduce the side effect of synthetic treatment. Tropical forests are the source of a large proportion of the world's recognized medicinal plants. It is variously estimated that there are between 200000 and 700000 species of tropical flowering plants. Such a wealth of identified species, which have been in no sense thoroughly investigated, constitutes an enormous potential source of plant-derived chemicals useful to man.

Semnan in Iran contained a very dense swamp forest in the past, but deforestation and the lack of conservation practices had virtually destroyed this unique forest in the last two decades. The people in the vicinity used this material in various ways: for example as roofing, wall or wall panel material for their houses and for making mats. The utilization of wetland products was now less intensive, because in recent years the vegetation had

decreased considerably. Some common type of tree species about 71 were recorded fewer than 41 families, when the hoar had been visited.

Another important use of the resources from this wetland was for fuel wood. Due to the scarcity of fuel wood around homesteads, the people were becoming increasingly dependent on this source of fuel. The naturally regenerating saplings in the swamp forests were being harvested at a non sustainable rate because of the scarcity of fuel.

Moreover, some plants consider as important source of nutrition and as a result of that these plants recommended for their therapeutic values. These plants include ginger, green tea, walnuts and some others plants. Other plants their derivatives consider as important source for active ingredients which are used in aspirin and toothpaste DUKE 1981, MYERS 1981<sup>12-13</sup>.

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