

Overview of Medicinal Plants spread and their uses in Asia

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Abstract

Medicinal herbs are among our oldest medicines and their increasing use in recent years is evidence of public interest in alternatives to conventional medicine. The use of herbal medicines and other dietary. Nature always stands as a golden mark to exemplify the outstanding phenomena of symbiosis. As the people are becoming aware of the potency and side effect of synthetic drugs, there is an increasing interest in the natural product remedies with a basic approach towards the nature. Throughout the history of mankind, many infectious diseases have been treated with herbals. Today estimate that about 80 % of people in developing countries still relies on traditional medicine. Of medicinal plants and a promising future in many countries of the world and Asia, as raw materials for the pharmaceutical industry, pharmaceutical and natural alternative to chemical drugs, medical.

1. Introduction

Herbal medicines are currently in demand and their popularity is increasing day by day. About 500 plants with medicinal use are mentioned in ancient literature and around 800 plants have been used in indigenous systems of medicine. India is a vast repository of medicinal plants that are used in traditional medical treatments (Cooper et al., 2004). The various indigenous systems such as Siddha, Ayurveda, Unani and Allopath use several plant species to treat different ailments (Rabe and Staden, 1997). The use of herbal medicine is becoming popular due to toxicity and side effects of allopathic medicines. This led to sudden increase in the number of herbal drug manufactures (Aggarwal, 2007). Herbal medicines as the major remedy in

traditional system of medicine have been used in medical practices since antiquity. The practices continue today because of its biomedical benefits as well as place in cultural beliefs in many parts of world. Herbal plants produce and contain a variety of chemical compounds that act upon the body and are used to prevent or treat disease or promote health and well-being. Herbal remedies and alternative medicines are used throughout the world and in the past herbs often represented the original sources of most drugs (Cooper, 2005).

Herbs and herbal medicines have been used by all cultures and all civilizations throughout the history. Right from the Greeks to the Egyptians to Indians to Native Americans, every other ancient society has had a long history of herbal medicine, the Chinese and the African tribes are no exception to this rule (UNESCO, 1998). The plant kingdom has provided an endless source of medicinal plants first used in their crude forms as herbal teas, syrups, infusions, ointments, liniments and powders. Evidence of use of herbal remedies goes back some 60 000 years to a burial site in a cave in northern Iraq, which was uncovered in 1960 (Tsao *et al*, 2005). An analysis of the soil around the human bones revealed extraordinary quantities of plant pollen of eight species. Seven of these are medicinal plants and still used throughout the herbal world *Aegle marmelos-Rauwolfia- Acorus calamus- Commiphora wightii-Tinospora cordifolia-Evolvulus alsinoides L.* This paper came to an overview of medicinal herbs and their uses and areas of deployment in Asia

2. Historical

The earliest known medical document is a 4000-year-old Sumerian clay tablet that recorded plant remedies for various illnesses. The ancient Egyptian Ebers papyrus from 3500 year ago lists hundreds of remedies. The Pun-tsaio contains thousands of herbal cures attributed to Shen-nung, China's legendary emperor who lived 4500 years ago. In India, herbal medicine dates back several thousand years to the Rig-Veda, the collection of Hindu sacred verses. The Badianus Manuscript is an illustrated document that reports the traditional medical knowledge of the Aztecs. Early Greeks and Romans Western medicine can be traced back to the Greek physician Hippocrates, who believed that disease had natural causes and used various herbal remedies in his treatments. Early Roman writings also influenced the development of western medicine, especially the works of Dioscorides, who compiled information on more than 600 species of plants with medicinal value in *De Materia Medica*. Many of the herbal remedies used by the Greeks and Romans were effective treatments that have become incorporated into modern medicine (e.g., willow bark tea, the precursor to aspirin). Dioscorides' work remained the standard medical reference in most of Europe for the next 1500 years (Loretini and McMahon, 2003).

During the past 30 years, medicinal and aromatic plants in the United States have moved from essentially unknown, minor agricultural plants into crops that many farmers consider producing as an alternative to usual plantings of food and feed crops. The attraction of medicinal and aromatic plants as worthy farm crops has grown due to the demand created by consumer interest in these plants for culinary, medicinal, and other anthropogenic applications. As racial diversity in the US has expanded, immigrants from countries in which herbs and herbal medicines are commonly used to flavor foods and treat illnesses have introduced other Americans to a diverse range of plant materials. Indeed, market trend surveys indicate that

mainstream American consumers will purchase 75% of the ethnic foods during the next decade (Packaged Facts 2004). Farmers growing medicinal and aromatic plants, similar to farmers in other agricultural systems, begin each growing season with hopes for success in producing a crop that brought to market will more than repay the expense of production. Yet, in addition to traditional cropping uncertainties of weather, pests, and other limitations, the medicinal and aromatic plant farmer also faces changes in consumer interest, international trade policies, and other issues that control demand. For these reasons, an understanding of future opportunities in the medicinal and aromatic plant industry (WHO 2003) is necessary to enable US growers to envision and invest in medicinal and aromatic crops that will meet market demands.

3. Uses the Medicinal Plants

Medicinal plants are also used for flavours and fragrances in various industries such as bakery, confectionery, alcoholic beverages, foods, soft drinks and pharmaceuticals. Added to the appetizers, biscuits, bread, butter, cakes, cheese, forcemeat, dessert, drinks, egg dishes, fish dishes, meat, puddings, salads, sances, seasonings, soups, teas, vegetables, and vinegars. Flavour of food makes the food palatable, added in pastes, powders of dentrifices, mouthwashes, and gargles, breath fresheners and denture cleaners. There is also need to develop better institutional research & development support & public polices for the development of essential oil industry (Bhattachar Jee, 2000).

A significant percentage of medicinal plant material is used to make plant extracts. This is carried out either by the end product manufacturers or by extract companies. In addition to the market for medicinal plants, there is an expanding market in developed countries for botanical based products, such as health foods and supplements, herbal drinks and various health and personal care products. The market for herbal products throughout the world is currently worth around an estimated US\$60

billion per year with a growth rate of 7 percent (Workshop, 2004).

4. Trade the Medicinal Plants

in medicinal plants is difficult to estimate accurately because much of the local trade is either unrecorded or poorly classified and because medicinal plants are also used in nonmedicinal end-uses and not reported separately. Domestic trade, in particular, is poorly recorded. Rising global interest in medicinal plants has also created a sustained and largely “underground” trade in plant materials, many of which are being collected in LDCs in an unregulated manner, resulting in indiscriminate harvest of wild varieties and serious damage to biodiversity. It is, therefore, not possible to assess global trade in all medicinal plants. In addition, official trade statistics either do not identify the plants individually or do not separate their medicinal use from other usage. It should be noted that this report focuses on international trade issues in plant material. Medicinal plants are, however, inputs into a wide range of materials that are used in medicinal or health products and modified forms or different products which contain elements of these plants are on-trade. These latter are not considered in this report because of the difficulty of identifying them (e.g. many are traded as medicines or health foods rather than as medicinal plants). Germany, for example, is one of the main importers of medicinal plants and also a major international producer and exporter of medicinal plants. Accepting these data limitations, the following information provides a broad picture of the international trade although, for the above reasons, the data shown should only be considered as indicative (Workshop, 2004).

5. Future of the Medicinal Plants

Demand for medicinal and aromatic plants can be expected to continue for the near future, although the rate of sale increases for many medicinal and aromatic plant materials will probably not match those exhibited during the

1990s. While the global market for medicinal and aromatic plants can be estimated to be at least US\$60 billion (WHO 2003), exact market figures and market trends are difficult to ascertain due to herbal materials in a vast array of products being sold through a large number of outlets, ranging from entrepreneurial sales over the internet to mass market sales in supermarkets and natural product stores. In addition, favorable or unfavorable press reports (Brown 2005) about a particular herbal product can cause an especially strong growth or a rapid decline in interest and sales. Most market surveys suggest only a slow increase in overall demand within the US for medicinal and aromatic plants, as compared with the 1990s. If the US medical establishment fully accepts medicinal plants as part of the mainstream, conventional medicine system (following the example of Asian and European countries), sales could be expected to significantly increase (Blumenthal et al. 2006).

Rising incomes in Asia are likely to raise the standard of living of residents, increasing demand for additional medicinal and aromatic plants as the population suffers from the detrimental affects of ageing, weight gain, and other medical problems that frequently occur in relatively prosperous societies (Gross 2001). The increase in demand for medicinal and aromatic plants will likely continue to threaten native species in some localities. Price differentials between wild and cultivated plants due to a desire for the wild material or the unavailability of cultivated plant material currently encourages unsustainable collection practices in some localities, especially in economically depressed regions that lack resources for protecting plants. The financial gains for collecting and selling local plant material frequently represent a substantial share of total income for many medicinal plant collectors in several regions. As an example, collection of wild ginseng (valued at \$2 million in 2002), in West Virginia can be a considerable addition to budgets of poor families (average income <\$10,000) (CBPP, 1997).

Good agricultural practices, good collection practices, and good manufacturing practices have

been developed to help growers, collectors, and processors to produce and maintain quality medicinal and aromatic plant material (WHO 2003; FDA 2004). In the future, these guidelines are likely to be revised and become one of the standards for quality determination. Such practices should help reduce adulterants and contaminants in medicinal and aromatic plant materials brought to market. Such adulterants (extraneous and fake plant material, counterfeit goods, synthetic drugs, and other non-specific materials) are frequently a health hazard and deprive the consumer of expected benefits.

6. Uses Medicinal Plants species by regions

Asia is the largest continent, with 60% of the world's population living here. The region consists of the continent of Asia plus the islands in the Indian and the Pacific Oceans. It has abundant medicinal and aromatic plant species and traditional medicine in Asia has been practised since ancient times. The continent has well-documented traditional knowledge, long-standing practice of traditional medicine and the potential for social and economic development of medicinal and aromatic plants in primary health care and industrial scale production.

Medicinal and aromatic plants constitute the basis of primary health care for the majority of the population in Asia and are a critical source of income for rural populations. They earn their living by selling wild or cultivated plant material. Approximately 90% of the plants are still collected from forests. Only a few countries, mainly China, India, Indonesia, Nepal, Thailand and Viet Nam produce medicinal and aromatic plants commercially. There are a few others that produce them on a commercial scale but the quantities are small and mainly for domestic consumption. Some commercially cultivated important species of medicinal and aromatic plants in Asia (Chapman and Chomchalow, 2005).

Indian Ayurveda along with the Jamu, Siddha, Tibetan, traditional Chinese and Unani systems

of medicine are an important source of health and livelihood for millions of Asian people. Ayurvedic medicine is widely practised especially in Bangladesh, India, Nepal, Pakistan and Sri Lanka. The Chinese traditional medicine technique, particularly acupuncture, is the most widely used and is practised in every region of the world. Unani medicine draws from the traditional systems of medicine of China, Egypt, India, Iraq, Persia and the Syrian Arab Republic and is also known as Arabic medicine.

International and national trade in alternative medicines including herbal products is increasing rapidly. Significant quantities of herbal products are now imported by countries in Asia, Europe and North America. The estimated global trade in medicinal and aromatic plants was over US\$60 billion in 2000 and is expected to reach 5 billion by 2050. China and India are the world's leading exporters of medicinal and aromatic plant materials (Kumar, 2003).

Interest in medicinal plants has been revived in recent times and various national and international organizations including the Food and Agriculture Organization (FAO), the International Development Research Centre (IDRC), the United Nations Industrial Development Organization (UNIDO), the World Health Organization (WHO) and others have been addressing issues concerning medicinal and aromatic plants through support for research, networking and coordination. In almost every Asian country there is a vast indigenous knowledge of the use of medicinal plants.

However, the biodiversity of medicinal and aromatic plants is yet to be studied thoroughly in many countries. The commercial exploitation, unsustainable use, cultural changes and lack of institutional support threaten resources and local knowledge. A growing number of countries are developing national policies on traditional medicine that cover quality and safety. Bhutan, Lao PDR, Nepal and to a lesser extent Bangladesh, China, India, Indonesia and Pakistan maintain considerable natural forest cover and are still able to collect these plants

from the wild. A few countries including China, India and Sri Lanka have formulated legislation to conserve their natural resources of medicinal and aromatic plants. Many other countries of the region have ceased the practice of wild collection (Chapman and Chomchalow, 2005). Detailed information on the status of medicinal and aromatic plants is important to policy makers, the scientific community and user groups to be able to frame effective policies, formulate projects to advance research and development activities and establish environmentally sustainable and economically viable enterprises.

7.Areas of deployment of medicinal herbs in Asia

7.1.Southwest Asia

Includes Afghanistan, Armenia, Azerbaijan, Bahrain, Cyprus, Georgia, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, Syria, Turkey, the United Arab Emirates and Yemen. The flora of the Near East region is diverse and comprises some 23,000 vascular plant species, of which 6,700 are endemic to the region. The Middle East flora is estimated at 15,000 species. The use of medicinal and aromatic plants, herbs and spices in the region has a long history and forms an important part of a number of cultures. Traditional medicine still plays a major role in health care systems despite the availability of modern medicine.

Iraq is located in the Middle East on the Arab Gulf. It shares borders with Iran, Jordan, Kuwait, Saudi Arabia, Syria and Turkey. The population of Iraq is estimated to be around 24.7 million and the area about 437,072 square kilometers. Most of the land area is desert and only 12.5% is under cultivation. Although the Tigris and Euphrates rivers provide irrigation for the fertile soils on their banks, Iraq has less than 0.5% forest and other woodland cover. Over exploitation of the natural forests as well as shifting agriculture practices, forest fires, uncontrolled grazing and years of war has destroyed large areas of natural resources.

Traditional Medicine Systems -Traditional medicine has been used both for maintaining health and curing disease in Iraq. Traditional healers in Iraq are known as attars. In Iraqi folk medicine practices, medicinal plants are used in the form of beverages prepared by soaking either the leaves or the whole plant in boiling water (Sabra and Walter, 2000).

Iraq has 3,000 vascular plant species of which about 190 are endemic. Of the approximately 1,500 plants used in Iraq, the majority have been used for their medicinal and aromatic properties. Most of the medicinal plants are collected from the forests but some of them are cultivated. Some medicinal and aromatic plant species found in Iraq are given in. Herbs such as *Cyperus alopecuroides* Rottb., *Cyperus pygmaeus* Rottb. and *Rubus sanctus* Schreb. are common on the riparian islands and riversides. Iraq is one of the leading world producers of liquorice obtained from the dried roots and rhizome of *Glycyrrhiza* spp. particularly *Glycyrrhiza glabra* L. The plant grows abundantly in wild (Sabra and Walter, 2000).

7.2.Southeast Asia

includes Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, Timor- Leste and Viet Nam. It covers an area of 4,000,000 square kilometres and is has the population of more than 550 million (as of 2004), of which about a fifth (110 million) live on the Indonesian island of Java.

Southeast Asia is home to the most extensive areas of tropical rainforest apart from Central and South America. However, much of the forest is under threat from logging, clearing for agriculture and dam building. Current rates of deforestation suggest that most of the rainforest will be gone from Malaysia and Indonesia within 20 years.

Malaysia is among the world's top 12 biodiversity rich countries where Ayurveda, Siddha, traditional Chinese, traditional Malay,

Unani and other traditional systems of medicine are commonly practised. The indigenous medicinal system of Malaysia, the traditional Malay medicine has been influenced by the medicine practices of Arabia, India, Java and those practised by numerous aboriginal races. The Philippines traditional medicine system also has common roots with other traditional healing methods in Southeast Asian countries including Burma, Cambodia, Indonesia, Laos, Malaysia, Thailand, Viet Nam and outlying islands. In general the traditional medicine systems of the region have been greatly influenced by those practised in the neighbouring regions especially of East and South Asia, mainly that of China and India. There is potential of commercial exploitation of the region's medicinal and aromatic plant resources to enhance the social and health status of its people. Some leading medicinal and aromatic plants of Malaysia

Botanical name /*Orthosiphon stamineus* Benth –
 Chemical Constituents/ Polyphenols caffeic acid derivatives & diterpene-. Uses/Indications/ In kidney diseases & urinary stones, arteriosclerosis, circulatory disorders-- Part(s) used/ Leaves, entire plant—Comments/ Cultivated mainly by smallholders on lands of approximately 10 hectares. The domestic market demand is still dependent on imported materials(Kumar, 2003) .

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