COMPREHENSIVE REVIEW ON WORLD HERB TRADE AND MOST UTILIZED MEDICINAL PLANT

Sunita A. Chaudhary*, Krupa V. Gadhvi, Ankit B. Chaudhary

*Saraswati Institute of Pharmaceutical Sciences, Dhanap, Chiloda, Gandhinagar- 382355, Gujarat, India

ABSTRACT: Herbal medicine is plant derived material or preparations with therapeutic or other human health benefits, which contain either raw or processed ingredients from one or more plants. Allopathic medicine are said to be more successful in acute conditions of diseases, but due to its side effects plant based medicines are preferred. In the end of 18th century herbal medicines started popularizing in healthcare area. The utilization of medicinal herbs became 60% in most of the countries and 70-80% of Chinese, Indian, African and Germany people used from 19th century up to now. Some of the medicinal plants have highest trade in world herb market consistently through past years. These plants are Panax ginseng, Sylibum marianum, Zingiber officinalis, Allium sativum, Glycyrrhiza glabra, Ginkgo biloba, Echinacea indica, Rodeala rosea, Hypericum perforatum and Curcuma longa have shown highest trade in world herb market and these are the top plants which are used in the herbal preparation.

Key words: Traditional medicine, World herb trade
INTRODUCTION

Complementary alternative medicine (CAM) is a group of diverse medical and health care systems, practices, and products that are not generally considered to be part of conventional medicine and are not integrated into the dominant health care system. Other terms sometimes used to describe this health care practices include “natural medicine”, “non conventional medicine” and “holistic medicine”. Complementary medicine is used together with conventional medicine. An example of a complementary therapy is using aromatherapy A therapy in which the scent of essential oils from flowers, herbs, and trees is inhaled to promote health and well-being and to help a patient's discomfort following surgery. Alternative medicine is used in place of conventional medicine. An example of an alternative therapy is using a special diet to treat cancer instead of undergoing surgery, radiation, or chemotherapy that has been recommended by a conventional doctor [1]. WHO defines traditional medicine “the health practices, approaches, knowledge and beliefs incorporating plant, animal and mineral-based medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to treat, diagnose and prevent illnesses or maintain well-being”. In some Asian and African countries, 80% of the population depends on traditional medicine for primary health care. [2] In many developed countries, 70% to 80% of the population has used some form of alternative or complementary medicine (e.g. acupuncture). Herbal treatments are the most popular form of traditional medicine, and are highly lucrative in the international marketplace. Annual revenues in Western Europe reached US$ 5 billion in 2003-2004. In China sales of products totaled US$ 14 billion in 2005. Herbal medicine revenue in Brazil was US$ 160 million in 2007. Over one-third of the population in developing countries lack access to essential medicines. The provision of safe and effective TM/CAM therapies could become a critical tool to increase access to health care. While China, the Democratic People’s Republic of Korea, the Republic of Korea and Vietnam have fully integrated traditional medicine into their health care systems, many countries are yet to collect and integrate standardized evidence on this type of health care. 70 countries have a national regulation on herbal medicines but the legislative control of medicinal plants has not evolved around a structured model. This is because medicinal products or herbs are defined differently in different countries and diverse approaches have been adopted with regard to licensing, dispensing, manufacturing and trading (Figure-1) [3].

Figure 1: World Trade of Important plant based medicinal constituents in year 2005 (6)
In China, traditional herbal preparations account for 30% to 50% of the total medicinal consumption. In Ghana, Mali, Nigeria and Zambia, the first line of treatment for 60% of children with high fever resulting from malaria is the use of herbal medicines at home [2].

In Europe, North America and other industrialized regions, over 50% of the population have used complementary or alternative medicine at least once. In San Francisco, London and South Africa, 75% of people living with HIV/AIDS use TM/CAM. 70% of the populations in Canada have used complementary medicine at least once. In Germany, 90% of the populations have used a natural remedy at some point in their life [2].

The introduction of allopathic medicine in the form of base chemicals and pharmaceuticals during the 18th and 19th centuries has demonstrated method for bringing quick relief from sufferings and this won instant admiration and popularity. A new discovery of sulpha drugs, synthetics, cortisones, chemotherapeutic agents and antibiotics in quick succession is the reason for decline in usage of traditional medicines [5]. But during the past decade of 1980’s the revival of interest in natural drugs started due to dangers of overmedication or harmful side effects of synthetic drugs. Thus that was a widespread belief; ‘green’ medicine is healthier than synthetic products[5].

Between 1995 and 2000, the number of doctors who had undergone special training in natural remedy medicine had almost doubled to 10,800. In the United States, 158 million of the adult population use complementary medicines and according to the USA Commission for Alternative and Complementary medicines, US $17 billion was spent on traditional remedies in 2000. In the United Kingdom, annual expenditure on alternative medicine is US$ 230 million. The global market for herbal medicines currently stands at over US $ 60 billion annually and is growing steadily [6].

The leading importers of plant medicinal products are Hong Kong, Japan, Germany, USA, South Korea, Indonesia, Singapore and France. The major exporting countries are China, Germany, Singapore, Egypt, Chile, USA, Morocco, Mexico, Pakistan, India, South Africa, Sudan, France, Thailand and Hong Kong[6].

There are 3, 50,000 plant species identified by botanist. Only 20-30% investigated for their therapeutic effect. 5-10% of them are used in different diseases as traditional medicines.

According to the appointed world committee of medicinal plants, 378 plants have been investigated as authentic medicinal plant, 245 medicinal plants out of them have official monographs available in well known pharmacopeias and who guidelines. But 133 medicinal plants out of which are not supported by any of these materials because there effects are not evidence base [1].
### Table 1: Pharmacognosy of top ten medicinal plants

<table>
<thead>
<tr>
<th>Name of medicinal plants</th>
<th>Active constituents</th>
<th>Therapeutic category</th>
<th>Mode of action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ginseng [6,7,12,18,19] (Panax ginseng)</td>
<td>Ginsenosides</td>
<td>Adaptogen, Anti stress, Immunity enhancer, Tonic, Anti diabetic</td>
<td>Inhibition of lipid peroxidation, Reduce pancreatic β-cell death</td>
</tr>
<tr>
<td>Turmeric (6,7,14) (Curcuma longa)</td>
<td>Curcuminoids Curcumin I, II and III</td>
<td>Anti inflammatory, Anti arthritic, Anti cancer, Wound healing, Antiseptic, In a heart disease</td>
<td>COX-2 Inhibitor, Reduce Cholesterol and Fibrinogen level</td>
</tr>
<tr>
<td>Milk Thistle [6,7,12, 22] (Silybum marianum)</td>
<td>Flavonoids - Silymarin, Silybinin</td>
<td>Anti oxidant, Liver tonic, In Gall bladder disorder</td>
<td>Free radical scavenger, Repairs the damaged liver cells</td>
</tr>
<tr>
<td>Ginkgo [7,12,16,17] (Ginkgo biloba)</td>
<td>Flavone glycosides And Ginkgolides</td>
<td>Anti oxidant, Adaptogenic, Anti ageing, Anti depressant, In Alzheimer, Cardio tonic</td>
<td>Increases cerebral blood flow and oxygen supply, Capillary plaque and Platelet Activated factor (PAF) inhibitor, Enhances blood flow at sensory organs</td>
</tr>
<tr>
<td>St. John’s Wort [7,12,20] (Hypericum perforatum)</td>
<td>Anthaceene aglycone - Hypericine, Flavanoidal</td>
<td>Anti depressant, In sleep disorder, In seasonal disorder, In dis-menorrhea</td>
<td>Inhibition of 5-HT, Dopamine, GABA reuptake</td>
</tr>
<tr>
<td>Rose root [7,12,24,25] (Rhodia Rosea)</td>
<td>Cinnamol alcohol glycosides - Rosavin and salidrose</td>
<td>Adaptogenic, Anti arrhythmic, Mood elevator, memory enhancer, antidepressant, Anti cancer, Anti hyperlipidaemic</td>
<td>5-HT uptake inhibitor, ↓se Catecholamine and cholesterol</td>
</tr>
<tr>
<td>Garlic [7-9,12,26] (Allium sativum)</td>
<td>Sulphur containing compounds - Allin, Allicin</td>
<td>Anti hypercholesteremic, Circulatory diseases (Artherosclerosis), Aphrodisiac</td>
<td>Stimulate production of Nitric oxide in the lining of blood vessel wall</td>
</tr>
<tr>
<td>Echinacea [7,12,26,27] (Echinacea indica)</td>
<td>Echinacoside, Cynarin polysaccharides; volatile oil, echinolone; betaine</td>
<td>Anti arthritic, Immunomodulator, Natural Antibiotic</td>
<td>Increase Hyaluronic acid at the joints, Reduce hyaluronidase producing bacteria</td>
</tr>
<tr>
<td>Ginseng [6,7,12,18,19] (Panax ginseng)</td>
<td>Ginsenosides</td>
<td>Adaptogen, Anti stress, Immunity enhancer, Tonic, Anti diabetic</td>
<td>Inhibition of lipid peroxidation, Reduce pancreatic β-cell death</td>
</tr>
</tbody>
</table>
In India approximately 1800 plant species are used in ayurveda, 600 for siddha, about 400 for unani and more than 400 for homeopathic system of medicines. Thus the total number of plant species used in traditional systems of medicines in India comes to near about 8000. A few species are the source of refined compounds used in pharmaceutical industry. Eg terpenoids contributed major part of world wide trade US$7.7 billion, followed by glycosides US$7.2 billion, alkaloids US$3.6 billion and other plant derived compounds were about US$4 billion. The overall global market in the herbal medicines was estimated US$12.4 billion in 1994 increasing up to US$19.6 billion in 1999 and reaches to US$ 24.2 billion in 2002; it was expected to have US$ 62 billion in 2005[6].

Table 2: Top ten herbs in various activities

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ginseng</td>
<td>Citrus fruits</td>
<td>Momordica charantia</td>
<td>Ginkgo</td>
<td>Ginseng</td>
<td>St. John's wort</td>
</tr>
<tr>
<td>2.</td>
<td>Rose root</td>
<td>Milk Thistle</td>
<td>Tinospora cordifolia</td>
<td>Ginseng</td>
<td></td>
<td>Centella asiatica</td>
</tr>
<tr>
<td>3.</td>
<td>Withania somnifera</td>
<td>Ginkgo</td>
<td>Pterocarpus marsupium</td>
<td>Fenugreek seeds</td>
<td>Shankhpushpi</td>
<td>Turmeric</td>
</tr>
<tr>
<td>4.</td>
<td>Gynostemma pentaphyllum (Jiaogulan)</td>
<td>Turmeric</td>
<td>Ficus Glomerulata</td>
<td>Rauwolfia</td>
<td>Rauwolfia</td>
<td>Garlic</td>
</tr>
<tr>
<td>5.</td>
<td>Turmeric</td>
<td>Garlic</td>
<td>Gymnema sylvestre</td>
<td>Ephedra</td>
<td>Valerian</td>
<td>Ginger</td>
</tr>
<tr>
<td>6.</td>
<td>Ginkgo</td>
<td>Rose root</td>
<td>Azadirachta indica</td>
<td>Digitalis</td>
<td></td>
<td>Withania somnifera</td>
</tr>
<tr>
<td>7.</td>
<td>Hawthorne</td>
<td>Aloe vera</td>
<td>Phyllanthus niruri</td>
<td>Garlic</td>
<td>Opium</td>
<td>Guggul</td>
</tr>
<tr>
<td>8.</td>
<td>Grapes Seed Extract.</td>
<td>St. John’s wart</td>
<td>Ashwagandha</td>
<td>Thevetia nerifolia</td>
<td>Aconite</td>
<td>Liquorice</td>
</tr>
<tr>
<td>9.</td>
<td>Milk thistle</td>
<td>Embelica</td>
<td>Echinacea</td>
<td>Guggul</td>
<td>Nux vomica</td>
<td>Capsicum</td>
</tr>
<tr>
<td>10.</td>
<td>Gotu kola</td>
<td>Liquorice</td>
<td>Swertia chirata</td>
<td>Hawthorn berry</td>
<td>Ephedra</td>
<td>Colchicum</td>
</tr>
</tbody>
</table>
There are some important most selling and useful drugs from worldwide survey is 1) Top ten best selling botanicals in world in 2007 are[12], Garlic, Echinacea, Saw palmetto, Ginkgo, Cranberry, Ginseng, Black cohosh, St. John's wort, Milk thistle 2) Top ten most researched herbs are [13]; Garlic, Hawthorn, Ginkgo Biloba, Ephedra, Licorice, Bilberry, Echinacea, Milk Thistle, Astragalus, Ginseng. 3) The pharmacognosy of top ten most widely used medicinal plants are mentioned in Table 1. 4) All these drugs are having different activities in various field of diseases. Table 2 mentioned the top ten herbs in various activities. 5) Activation of plants is due to its specific part only, the most probably whole plants is not useful for activities. Figure-2 includes specific plant parts of most consumed herbs.

CONCLUSION

From the literature review it can be concluded compared to the allopathic drugs, herbal medicines are more successfully used in treatment of diseases. It also reflected growing trade of TM/CAM in world herb market.
REFERENCES


3. Additional Medicine strategy

4. Additional medicine, Fact sheet

5. Handa SS, Kaul MK. Pushpangadam, Traditional Medicine: ‘Supplement to Cultivation and Utilization of Medicinal plants’ regional Research lab, Jammu-Tawi, 1996;689-701

6. Pushpangadam, Traditional Medicine: ‘Supplement to Cultivation and Utilization of Medicinal plants’ regional Research lab, Jammu-Tawi, 1996; 689-701


29. Brahmachari U N, The role of science in the recent progress of medicine, CURRENT SCIENCE, 2001; 81(1):


******************************************************************************

International Journal of Applied Biology and Pharmaceutical Technology
Available online at www.ijabpt.com