



## Herbal medicines: Overview

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### ABSTRACT

This review highlights the knowledge about the safety, efficacy, treatment, present market scenario and future of herbal medicines. Herbal medicines are standardized herbal preparations consisting of complex mixtures of one or more plants which contain as active ingredients plant parts or plant material in the crude or processed state. Herbal medicine has become a popular form of healthcare. There is increasing awareness and general acceptability of the use of herbal drugs in today's medical practice. Although, most of these applications are unorthodox, it is however a known fact that over 80% of the world population depends on herbal medicines and product for healthy living.

**Keywords:** herbal medicine, efficacy, safety.

### INTRODUCTION

Herbal medicines include herbs, herbal materials, herbal preparations and finished products that contain active ingredients, parts of plant, or other materials, or their combinations.

World Health Organization (WHO) has defined herbal medicines as "finished labelled medicinal products that contain active ingredients, aerial or underground parts of the plant or other plant material or combinations, there of, whether in the crude state or as plant preparations.

The same WHO document adds that "medicines containing plant material combined with chemically defined active substances, including chemically defined isolated constituents of plants are not considered to be herbal medicines".

Thus herbal medicines, as defined by WHO, can therefore be classified into three categories as follows:

1. Phytomedicines or phytopharmaceuticals sold as over the counter (OTC) products in modern dosage forms such as tablets, capsules and liquids for oral use.
2. Dietary supplements containing herbal products, also called nutraceuticals, available in modern dosage forms.

3. Herbal medicines consisting of crude, semi-processed or processed medicinal plants.

### Herbal Medicines and Treatment of Diseases

#### Scientific Reasons

The growing concern towards the harmful effects of some synthetic laboratory produced drugs (for example, the public disquiet about side effects in the wake of thalidomide fiasco), the scientists have started to look for alternatives. The scientists have concluded that herbal medicines are valuable alternatives as they have lesser side effects. A vast amount of synthetic work has given relatively small improvements over the prototypes / new templates to use in the design of potential therapeutic agents, and natural products are providing such templates. Newly isolated phytoconstituents are used as "lead" compound for the synthetic design of analogues with either improved therapeutic activity or reduced toxicity. An example of plant derived lead compound is podophyllotoxin, which is a lignan derivative from American Mandrake (*Podophyllum peltatum*) and Indian Podophyllum (*Podophyllum hexandrum*), and has served as

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prototype antineoplastic agent for the development of less toxic and more water soluble, etoposide and tenniposide, approved by US FDA and at present marketed in Europe and Japan. "Lead phytoconstituents" or "lead molecule" are used into medicinally important drugs. For example the synthetic compound meperidine (pethidine) was found to have analgesic activity, which was discovered during screening intended as anticholinergic agents based on the plant derived tropane alkaloids, atropine. Structural modification of meperidine led in turn to the haloperidol series of neuroleptics. Many herbal medicines have been found in nature, e.g. Podophyllotoxin, Vincristine, Vinblastin etc. Some of these molecules have been made in laboratories as an intellectual challenge to duplicate what nature has already achieved. Modern medicines may produce dissatisfaction, ineffectiveness, side effects, impersonal to technologically oriented and too costly. Search for cure for conditions for which allopathy has no answer, especially chronic diseases and disorders, herbal medicines may be one of important option.

### **Non – Scientific Reasons**

Philosophical congruence is more compatible with person's values, worldviews, spiritual / religious philosophy or beliefs regarding the nature and meaning of health and illness. Need for personal control.

### **Healing With Herbs**

There are two approaches towards healing of herbs

1. Rationalism: It is based on established laws and principles, rather than on what is directly perceived.
2. Empiricism: It is knowledge based on practical experiences, rather than principles.
3. Inherent in modern folk medicine is the philosophy of "Vitalism".

'Vitalism' is the belief that life is unique, and it possesses qualities that cannot be defined in simple terms of anatomy and physical makeup. It is important part of the empirical perception of medicine.

There is also a purely scientific approach to the world of herbs known as Pharmacognosy.

### **Healing, the Tribal Way<sup>1</sup>**

It is known through ages. Its curative properties passed from one generation to another and limited to adivasi community and the surrounding villages. The Adivasi medicine has around 5,000 different varieties of herbs. These are collected from the

forest in Assam, Sikkim, Meghalaya, Arunachal Pradesh, Bihar, Chattisgarh, Gujarat, Kollimalla and Kallurayalmai near Villupuram. Some of these are powdered and made into medicines, while the extract of some are used to form the medicine. These are accompanied with a prayer to their Gods for cure.

### **CHILDREN AND HERBAL REMEDIES**

Complementing the use of herbal remedies in adults, parents encourage the use of herbal remedies for their children for the purpose of maintaining good health and to treat their illnesses. The text reviews the principles to be kept in parents' mind while addressing the use of herbal medicines in children.

Complementary and Alternative Medicine (CAM) refers to diagnostic and therapeutic systems that are not encompassed within the practice of allopathic medicine. The National Center for CAM at the National Institutes of Health defines CAM as "A broad domain of healing resources that encompasses all health systems, modalities, and practices and their accompanying theories and beliefs, other than those intrinsic to the politically dominant health system of a particular society or culture in a given historical period<sup>2</sup>."

### **Efficacy of Herbal Remedies**

Angell and Kassirer<sup>3</sup> stated that there is no such thing as an "alternative" medicine but that for which, effectiveness has been confirmed using the scrutiny of evidence based science. Thus, any claims of health benefits from a herbal remedy should be subjected to the scrutiny of evidence based medicine. Inevitably, the clinician must read critically the peer – reviewed studies on efficacy of herbal remedies and from his or her own conclusions<sup>4-6</sup>.

Ayurvedic medications have been known to cause lead poisoning in children because of their contamination with this heavy metal and others, such as arsenic and Mercury<sup>7-8</sup>.

### **Consumers of Herbal Remedies**

The conditions that may cause patients to seek out alternative therapies includes pain, attention deficit hyperactivity disorder, depression, weight loss, urinary tract or bladder infections, premenstrual syndrome, colds and viral infections, fibromyalgia, sleep problems, anxiety, lack of energy or trouble staying awake, and desire to enhance performance. Families with children having chronic medical conditions, such as autism, cystic fibrosis,

rheumatoid arthritis, or asthma, may be particularly likely to pursue herbal remedies as an essential part of the treatment regimen<sup>9</sup>.

### Susceptibility of Patients

Parents may be tempted to give combinations of herbs to children on the basis of advertising of the products, information that they may gain from a magazine or website, or advice from friends or relatives. Such experimentation is expensive and risks exposure of the child to unwanted adverse effects<sup>10-11</sup>.

### Long Term Use Considerations

Some chemicals found in plants are known carcinogens or tumour promoters in animals e.g. Pyrrolizidines (Comfrey, Coltsfoot, Senecio), Safrole (Sassafras); aristolochic acids (Wild ginger), catechin tannins (betel nuts). Whether such chemicals pose a threat to humans remain unknown.

### Dangers of Herbs

The FDA list has three categories of herbs: Unsafe herbs, herbs of undefined safety for good use and safe herbs<sup>12</sup>.

### Area of Drug Discovery

Natural products will continue to be important in four areas of drug discovery.

- As active ingredients useful for treatment, usually derived from traditional system of medicine.
- As a source of new lead compounds of novel chemical structures and useful for drug discovery.
- As targets of production by biotechnology.

- Extraction of crude products from plants found in the forest.

Selection of plants will be based on

- Popularity in traditional medicine
- Popularity in tribal medicine.
- Other species belonging to the Genera of medicinal values.

### Present Market Scenario

India has only one percent of world's share. To overcome these problems, it is necessary to develop the pharmacopoeial standards.

### Herbal Medicine and Toxicity

Herbal medicine toxicity can result from contamination, adulteration, misidentification, and from the natural chemistry of herbs.

### Future of Herbal Medicines

The future of herbal medicines is likely to continue due to following reasons.

- Older diseases (e.g. Malaria) are resurfacing, newer ones (e.g. AIDS) and drug resistance are emerging and some of the disease (e.g. Cancer, Alzheimer's) still defy solutions.
- Average life expectancy is going up and child mortality rates going down. Drugs for age related problems are required.
- World population is growing and dependence on herbal medicine is the highest.
- Herbal medicines are supposed to be cheaper than allopathic medicine.
- In Global South, use will increase because of increase in population and better affordability and in Global North because of a paradigm shift in attitude.

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