

# Phcog Rev.: A Report Herbal Medicine-Dream Unresolved

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Herbal Medicine is defined as branch of science in which plant based formulations are used to alleviate the diseases. It is also known as botanical medicine or phytomedicine. Lately phytotherapy has been introduced as more accurate synonym of herbal or botanical medicine. Recently treatment of diseases with herbal medicine has been addressed as phytopharmacotherapy. Recently herbal medicinal products have been included in dietary supplements.

In the early twentieth century herbal medicine was prime healthcare system as antibiotics or analgesics were not available. With evident of allopathic system of medicine, herbal medicine gradually lost its popularity among people and it was based on the fast therapeutic actions of synthetic drugs. Almost a century has passed and it has witnessed limitations of allopathic system of medicine. Lately herbal medicine has gained momentum and it is evident from the fact that certain herbal remedies peaked at par with synthetic drugs.

Keeping in mind the rapid pace of research and development in herbal medicine, it has become an interdisciplinary science. If we look at scientific monograph of a medicinal plant, it can be concluded that knowledge of Alternative and Complementary Systems of Medicines like Ayurveda, botany, pharmacognosy and phytochemistry, biochemistry, ethno pharmacology and toxicology is integral part of herbal medicine.

We have witnessed explosive growth of herbal drug industry recently. Data and meta-analysis have shown that more and more people are consulting herbal practitioners. To cheer up, World Health Organization has also identified importance of herbal medicines. According to a study from U.S., 60-70% patients living in rural areas are dependent on herbal medicine for their day to day diseases.

Several authors have reported favorable results with herbal drugs (mostly in form of extracts) either in animal or in human studies. *Ginkgo biloba* L., *Echinacea purpurea* L., *Hypericum perforatum* L. and *Cimicifuga racemosa* (L.) Nutt. were subjected to clinical trials. Some studies reported usefulness of these herbal drugs. On the other hand some trials reported failure of the same drugs. Several studies reported lack of efficacy of *Echinacea* in the treatment of common cold. This drug once upon a time was popular treatment for common cold but soon it vanished from the stores. Same was the fate of *Ginkgo biloba* (used for tinnitus and amnesia) and *Cimicifuga racemosa* (used for hot flashes). *Hypericum perforatum* was however an exception. 1787 clinical studies were done on this plant and majority of them proved efficacy of the plant in the treatment of mild to moderate depression. In Germany alone, sale of *Hypericum*

*perforatum* was 20 times more than fluoxetine, the standard antidepressant. As the plant was in limelight, further utility of the plant was unrevealed by antiviral activity of hypericin, a red dye found in petals. Synthetic hypericin was synthesized and subjected to clinical trials for treatment of AIDS. Further research highlighted hyperforin as antidepressant principle of the plant. Soon *Hypericum perforatum* magic started fading as heavy drug interactions were reported.

This is difficult to understand that studies done prior to 2000 never reported serious drug interactions with *Hypericum perforatum*. If we go through literature related to *Hypericum perforatum* after 2000 we can see endless reports of drug interactions with synthetic drugs. These types of studies (either authentic or vague) only created confusion, if somebody is interested in herbal prescription.

*Silybum marianum* L., the reputed hepatoprotective, has remained a golden standard in the treated of liver ailments. Several years have passed but status of this herbal drug remains unquestioned. In India, a study reported that *Picrorrhiza kurroa* Royle., is more potent than *Silybum marianum* as hepatoprotective agent (study is however not complete from all aspects). If the results of the study were true, then more clinical trials were warranted with *Picrorrhiza kurroa*.

Ayurveda and Traditional Chinese Medicine are two important system of medicines largely based on medicinal plants. It is needless to say that Traditional Chinese Medicine is most developed system among Complementary and Alternative therapies. Comprehensive research has been done on phytochemical and pharmacological aspects of medicinal plants used in formulations.

*Commiphora mukul* (gugul) has been widely used as anti-inflammatory and anti-arthritic agent in Ayurveda. Several animal studies have reported anti-inflammatory activity of guggulsterones, the active constituents. Lately clinical trials have proved efficacy of *Commiphora mukul* in the treatment of rheumatoid arthritis and osteoarthritis.

The other side of *Commiphora mukul* story was that guggulsterones were reported to inhibit cholesterol synthesis in the liver via antagonism to the farnesoid X receptor and the bile-acid receptor. Several clinical studies again demonstrated the usefulness of standardized extract of *Commiphora mukul* (guggulipid) in treating high levels of blood cholesterol. It was only in 1987 when standardized extract of *Commiphora mukul* was marketed in India.

This was not end of the story. In a recent study, guggulsterone activated nuclear receptors (estrogen receptor a, pregnane X receptor, and progesterone receptor). The study also showed that activation of pregnane receptor by

guggulsterone led to induction of CYP3A genes in vitro. In India a study reported that guggulipid decreases the bioavailability of propranolol and diltiazem.

Herbal drugs are significant source of hepatoprotective drugs. Mono and poly-herbal preparations have been used in various liver disorders. According to one estimate, more than 700 mono and poly-herbal preparations in the form of decoction, tincture, tablets and capsules from more than 100 plants are in clinical use. Hard to believe several studies have appeared in journals addressing hepatotoxic potential of herbal drugs. The studies suggest that the drugs which are actually claimed to be hepatoprotective, when subjected to studies were found to be hepatotoxic.

We have addressed certain herbal drugs in this article. Initially a number of pre-clinical studies appear indicating the efficacy in animal models. Not much number of clinical studies has been done on herbal drugs. The manufacturers have to depend on initial findings to develop herbal products. Literature supporting the herbal products is also based on animal findings. When an herbal product appears in the market all of a sudden adverse studies appear in journals thereby killing the product. This may be attributed to lack of clinical studies with herbal drugs.

Keeping in mind the latest trends in herbal drugs, there is need for making forums and discussion groups among researchers and physicians. Complete studies should be done on reputed herbal drugs and then they should enter the

market. This will not eliminate the uncertainty among physicians who are at stake while prescribing herbal drugs. FDA and WHO should ensure that bogus agenda against herbal drugs is not addressed. A blueprint indicating clinically efficacious herbal drugs should be prepared.

In India, several steps have been taken to improve quality of Ayurvedic medicines. Good manufacturing practice (GMP) guidelines have been introduced so as to ensure quality control. Medicinal plant boards have been constituted at state and center level to inspire people particularly the farmers for adopting cultivation of medicinal plants. Herbal gardens have been developed to make common man conversant with rich heritage of Indian system of medicine. Various institutes like NIPER, NBRI, CIMAP and CDRI are playing pivotal role in laying down standards for Ayurvedic system of medicine.

To conclude it may be said that herbal drugs have provided us with potent weapons like atropine, codeine, taxol, vincristine and vinblastine. In modern scenario diseases are becoming drug-resistant and scientists are studying possible role of plant based drugs for screening life saving drugs. Herbal system of medicine is full fledged system of medicine and it can not be ruled out as quackery as ancient finding and documentation provide us lead or developing life-saving drugs.