

A CONCEPT TO IMPROVE THE STAGNANT AYURVEDIC MATERIA MEDICA

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ABSTRACT: *The Ayurvedic materia medica is based upto 500 to 600 plant drugs. The number of these drugs are dwindling rapidly due to several natural and man made factors with the result the physicians are unable to get the required drug or the required quantity of the drug. This ultimately results in the gradual death of the entire system. In order to overcome this alarming problem and to provide a permanent solution, various aspects like new or alternate sources for the drugs, exploitation of crude drug market sources, ethnobotanical data and cultivation and germ plasm are discussed in detail.*

INTRODUCTION

The materia medica in Ayurveda revolves round 500 to 600 drugs of plant origin besides a few mineral and animal origin based on *Samhitas* (Sastri 1968, 1970, Gupta 1970 a) which has been supplemented to some extent by the Nighantu writers like Rajanarahari (1933) and Chunekar and Pandey (1969) on *Bhavaprakasanighantu* to mention a few. This limited number of drugs was perhaps sufficient for the treatments in ancient times since the diseases were limited. But, during recent times, the number of diseases have increased geometrically which is coupled with the population explosion in the present century. Hence, the requirements of these drugs are increasing alarmingly to the extent that in many cases the original source of the drug or the drug itself face the problem of endangerment and extinction. Consequently, there is an urgent need to replenish the dwindling number of drugs. Fortunately, India possess different types of climatic conditions and embraces various

tracts of tropical and temperate plains, hills and valleys, irrigated soils, moist and dry climatic conditions which has enabled the country to be termed as the "Botanical garden of the world" where more than 2000 species of medicinal plants occur. The different types of forests from the high altitude temperate forest of Himalayas to the scrub jungle at sea level embodies all the plant drugs required for the treatment of diseases in ayurveda either as single drugs or as compound preparations.

The quest for and addition of plants of medicinal importance (drugs in ayurveda) can be solved on the following lines:

1. Medico – botanical survey in the forests with particular reference to findings out and establishing new or allied source to the accepted source drug;
2. Systematic studies on the crude drugs sold in the market;

3. Ethno – botanical data;
4. Cultivation of some important drugs and establishment of Germplasm bank.

Details of Studies

The following studies carried out at Regional Research Centre, Bangalore have yielded very valuable results which helps to circumvent the problem of depleting number of drugs in ayurveda.

1. New or allied sources

Systematic medico – botanical surveys in our forests in different seasons have brought to light many plants which could be exploited in place of the accepted drug. These plants possess similar chemical constituents which may lead to the fact that they may have identical therapeutic properties. As an example, the drug *Ishwari*, derives the botanical source from the roots of *Aristolochia indica*. *A. indicai* is a twiner having slender roots and found scattered. The physicians find it very difficult to procure the required quantity of the roots since a large number of plants have to be destroyed. Alternatively, medico – botanical surveys have revealed the occurrence of *Aristolochia tagala* in the forests of western ghats. This species is a large climber and possess a very long, stout root. The chemical constituents are also similar. The species occurs fairly abundantly and hence the collection of the drug is easy and the physician can meet the required demand (Yoganarasimhan *al*, 1981).

In many cases, the occurrence of the species accepted happens to be the Himalayas and thus the physicians in South India in

particular are at a disadvantage to procure such material; for example, *Tagara* (*Valeriana jatamansi*; = *V. wallichii*). To overcome such situation, medico – botanical surveys can help in detecting the allied species of the genus in South India. There are four species of *Valeriana* occurring in the hills of South India which remains unexploited. Preliminary studies on one species *V. arnottiana* at this centre have revealed that the volatile oil is higher than in *V. jatamasi* (Himalayan species). As such, there is great scope for the physicians to exploit the species of Valerians occurring in S. India in place of the more difficult Himalayan species (Yoganarasimhan *al*, 1978, Mary *al*, 1980). There are many more such examples wherein the natural resources of the forest wealth could be exploited by the physicians, thereby enriching the materia medica.

2. Market Sample Studies

Several crude drugs other than the accepted one are sold in the markets which are utilised in the same ayurvedic preparations under the same formulations. Many times, these drugs are discarded by labelling them as either spurious, adulterants or substitutes. But, quite often these drugs have been found to have similar therapeutic efficacy by the physicians and as such could be used in place of the accepted drug. This is corroborated by the statement of Vagbhata in *Astanga Hridaya* (Gupta 1970a) where it is clearly mentioned that whenever an original drug is not available, a suitable alternative may be used in its place. This type of utilisation of drugs sold in the market will also help to improve the number of sources for the drugs that are fast diminishing. It also helps the physicians to utilise the locally available drug material. The authors have been conducting studies on the market samples of S. Indian crude drugs

which have revealed many additional sources. As an example, the drug *Rasna* is equated with *Pluchea lanceolata* as the accepted source; market studies in S. India have revealed that *Alpinia calcarata* and *Alpinia galanga* are sold in S. India and used by the physicians as *Rasna*. A total number of 21 drugs in ayurveda have been studied in detail which have brought to light a total number of 33 plants as additional sources from S. Indian market (Vasudevan

Nair *al*, 1982, 1983, 1984, 1984a). It may be stated that in some cases, the drugs belong to different botanical genera, sometimes even to different families. However, since they are observed by the physicians to have similar therapeutic efficacy, the drugs are deemed to have the potential to be used in place of the accepted source. The accompanying table provides the details of the drugs studied at this centre (Table 1).

TABLE – I

Details of other sources of drugs from S. Indian markets based on studies carried out so far at Regional Centre, Bangalore – 560 011.

S. No.	Drug	Accepted Botanical Source	Other Source
1	Rasna	<i>Pluchea lanceolata</i> (Asteraceae)	a. <i>Alpinia calcarata</i> b. <i>Alpinia galanga</i> (both Zingiberaceae)
2.	Bhunimba	<i>Swertia chirata</i> (Gentianaceae)	a. <i>Andrographis paniculata</i> (Acanthaceae)
3.	Daruharidra	<i>Berberis aristata</i> (Berberidaceae)	a. <i>Coscinium fenestratum</i> (Menispermaceae)
4.	Murva	<i>Marsdenia tenacissima</i> (Asclepiadaceae)	a. <i>Chonemorpha macrophyll</i> (Apocynaceae)
5.	Bharangi	<i>Clerodendrum serratum</i> (Verbenaceae)	a. <i>Pygmacopreman herbac</i> (Verbenaceae)
6.	Sankhapushpi	<i>Convolvulus pluricaulis</i> (Convolvulaceae)	a. <i>Clitoria ternatea</i> b. <i>Evolvulus aslinoides</i> (both of Convolvulaceae)
7.	Jivanti	<i>Laptadenia reticulata</i> (Asclepiadaceae)	a. <i>Holostemma rheedii</i> (Asclepiadaceae)

8.	Pashanabheda	<i>Aerva lanata</i> (Amaranthaceae)	a. <i>Rotula aquatica</i> (Boraginaceae) b. <i>Homonoia riparia</i> (Euphorbiaceae)
9.	Vidhari	<i>Pueraria tuberosa</i> (Fabaceae)	a. <i>Adenia hondala</i> (Passifloraceae) b. <i>Ipomoea paniculata</i> (Convolvulaceae) c. <i>Cycas circinalis</i> (Cycadaceae)
10.	Nagakesara	<i>Mesua ferrea</i> (Clusiaceae)	a. <i>Calophyllum inophyllum</i> (Clusoaceae) b. <i>Cinnamomum wightii</i> (Lauraceae) c. <i>Myristica fragrans</i> (Myristicaceae)
11.	Priyangu	<i>Callicarpa macrophylla</i> (Verbenaceae)	a. <i>Zanthoxylum rhetsa</i> (Rutaceae) b. <i>Callicarpa tomentosa</i> (Verbenaceae)
12.	Sati	<i>Hedychium spicatum</i> (Zingiberaceae)	a. <i>Kaempferia galanga</i> (Zingiberaceae)
13.	Sringi	<i>Pistacia interrима</i> (Pistaciaceae)	a. <i>Terminalia chebula</i> (Combretaceae)
14.	Sariva	<i>Hemidesmus indicus</i> (Asclepiadaceae)	a. <i>Decalepis hamiltonii</i> b. <i>Cryptolepis buehanani</i> (both Asclepiadaceae) c. <i>Ichnocarpus frutescens</i> (Apocynaceae)
15.	Prasarani	<i>Paederia foetida</i> (Rubiaceae)	a. <i>Merremia tridentata</i> (Convolvulaceae)
16.	Dusparsa	<i>Fagonia cretica</i> (Zygophyllaceae)	a. <i>Tragia involucreta</i> (Euphorbiaceae)
17.	Agaru	<i>Aquillaria agallocha</i> (Thymelaeaceae)	a. <i>Dysoxylum malabaricum</i> (Meliaceae)

18.	Prasaniparni	<i>Uraria picta</i> (Fabaceae)	a. <i>Pseudarthria viscida</i> (Fabaceae)
19.	Hapusha	<i>Juniperus communis</i> (Pinaceae)	a. <i>Sphaeranthus indicus</i> (Asteraceae)
20.	Sahachar	<i>Barleria prionitis</i> (Acanthaceae)	a. <i>Nilgirianthus heyneanus</i> b. <i>Pleocaulus sessilis</i> (both of Acanthaceae)
21.	Renuka	<i>Vitex agnuscastus</i> (Verbenaceae)	a. <i>Vitex altissima</i> b. <i>Vitex negundo</i> (both of Verbenaceae)

Note : The accepted source is given with reference to the *Ayurvedic Formulary of India* (Part I), (First Edition), 1978, of the Ministry of Health, Govt. of India, New Delhi.

3. Ethnobotanical Studies

The use of plants by the tribal people living in remote areas fall under Ethnobotany. Such people do not have any type of facility to combat their various diseases and naturally depend upon the various parts of the plants surroundings them for the treatments. These can be modified according to the requirements of ayurveda and gainfully exploited to increase the number of drugs in the materia medica. As an example, the tribal people of Silent Valley and Idukki in Kerala use fruits of *Chittelam* in digestive complaints (Personal observation). This drug is identified as the fruits of *Heracleum rigens* of Umbelliferae. Literature review in ayurveda have revealed that this plant does not find a place in our ancient system of medicine and as such forms an addition to the materia medica. Such studies carried out by this centre in the tribal pockets of Nilgiris (Yoganarashimah *al*, 1978a), Andaman and Nicobar islands (Yoganarasimhan *al*, 1984), Arunachal Pradesh and Madhya Pradesh have brought out many plants / drugs that could be exploited by the ayurvedists.

4. Cultivation and Germplasm

Many of our well known plant drugs are not available or are scarce today due to the indiscriminate exploitation from their natural habit for various purposes including the greed for export of drugs to different countries in vast quantities. In fact, among the developing countries, india occupies the foremost place in export of raw drugs; her exports to the six developed countries, U. S. A., W. Germany, France, Switzerland, U. K. and Japan exceeds approximately 10 million dollars. The principal drugs which are exported are *Ativish* (Aconite), *Kumari* (Aloe), *Varahikanda* (Dioscorea), *Yestimadhu* (Glycyrrhiza), *Sarpagandha* (Rauvolfia), *Tagara* (Valeriana), *Kusta* (Saussurea), *Vishamusti* (Strychnos), *Revanchini* (Rheum) to mention a few in ayurveda.

The only alternative to overcome the short supply of drugs indigenously is to undertake large scale cultivation of selected plants /

drugs. Various factors like soil, temperature, irrigation, manuring, etc., should be taken into consideration at the time of selecting a drug for cultivation. Depending upon the natural habitats, various zones at different altitudes should be selected for the cultivation of the particular drug.

5. Germplasm:

In order to get more quantity of the raw drugs and also better therapeutic efficacy, it is necessary to evolve better varieties of the drug plant. For this, it is essential to collect the different strains of a species from different localities and grow them in a common place which is called as the Germplasm bank. The Germplasm will be

useful in plant breeding experiments which in turn will help to procure better drugs both qualitatively and quantitatively. Small germplasms of such nature are available with ICAR for agricultural plants and with Central Institute of Medicinal Plants for some commercially established medicinal plants but so far no attempt has been made in the field of Ayurvedic drug plants. This establishments of Germplasm bank is the prime need of the hour since ultimately it is the only way for the survival of the ayurvedic system which depends primarily on plant based drugs.

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