



**Mini-review article**

**Quality standardisation of Ayurvedic drugs must be similar to modern medicine**

**Mayaram Uniyal<sup>1,2,\*</sup> and Kuldeep Raj<sup>3</sup>**

<sup>1</sup>Director (Rtd.), CCRAS, Ministry of AYUSH, Govt. of India, New Delhi, India.

<sup>2</sup>Former Advisor, Jodi Buti and Sagandh Padap, Govt. of Uttarakhand, Dehradun, India.

<sup>3</sup>State Ayurvedic Hospital, Uttar Pradesh, India.

\*Corresponding author: E-mail: [ayushhealthindia@gmail.com](mailto:ayushhealthindia@gmail.com); Tel: +09760444425; 09761617385.

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**ABSTRACT**

In the ancient text of Ayurveda, some of the important aspects of the drug research of the modern medicine have already been touched giving explanations to the various curiosities which are now being measured on modern parameters. A comprehensive account of the Ayurvedic research methodology and application of modern techniques has been discussed in the present paper giving scope for adopting the discussed drug research methodology in the various fields of drug research.

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**INTRODUCTION**

It is a well-known fact that the Drugs (*Dravyas*) form a pivotal position in the entire drug research related to the Medico Botanical survey, identification of drugs, Pharmacognosy, cultivation of medicinal plants, Phytochemistry, Pharmacology, Toxicological studies and clinical trials of the drugs (Ali, 2009). The diseases, like cancer, diabetes, asthma, leprosy, rheumatoid arthritis, cardiac disorders, etc. are challenging to the research workers who should try to investigate some of the efficacies of Ayurvedic drugs for these diseases. Similarly, there is a need for finding out some effective oral contraceptives and substitutes for modern drugs which are often toxic in nature. It is, therefore, arduous task to undertake a course country wise survey of the medicinal plants grown in the country and to assess the economy of the drugs available in different regions extended from coastal areas to Alpine Himalayas. The basis of the drug research must include medico-botany, cultivation, Pharmacognosy, Phytochemistry, Pharmacology, Toxicology and finally clinical trials (Chauhan et al., 2015).

A common man, as well as the Government, would judge Ayurveda on the basis of treatment offered by it. Efficacy of treatment is assessed on the basis of clinical results which in turn solely depend upon the availability of authentic

Ayurvedic drugs (Sarmukaddam et al., 2010). Drugs with description available in the texts are valued as removal of the *Vata*, *Pitta* or *Kapha* disorders. The *Tridosha* theory will not be essential to acceptance to modern scientists since it is fundamental to Ayurveda; it may be worthwhile to check-up its validity by means by biochemical investigators.

**DRUG RESEARCH ASSESSMENT**

The assessment of Ayurvedic drugs must be essentially depended upon the Ayurvedic concepts. The methodology laid down for *Pariksha* (investigations) and *Anviksha* (research) in Ayurveda and other ancient texts must be followed. Besides, many other assessments must be considered during the research of a drug (Singh, 2010).

***Nam Rup Parichaya* (identification)**

Charaka has emphasised that a physician who knows *Nama* and *Rupa* of the herbs, is the real scholar. This aspect needs for the most attention of the research workers. Since most of the drugs known today are controversial ones and because of this, in spite of their usefulness, are becoming obsolete; name or *Paryaya* is given to several different drugs and one drug is given several

names or synonyms. The task is to re-establish *Nama* (nomenclature) and *Rupa* (morphology and histology) with regard to each individual drug entity.

### **Guna and Karma (Pharmacodynamics)**

Identification of *Guna* incorporates the properties of drug according to Ayurveda, for example, *Rasa*, *Guna*, *Virya*, *Vipaka* and *Prabhava*. For this, some objective tests have to be evolved in respect of each of the properties described which should be uniform and re-assessable. Pharmacodynamics of the drugs should be assessed on the basis of *Karma* mentioned in the ancient *Nighantus* and through the modern Pharmacological investigations. This will create a new faith towards Ayurvedic science among the new generation and modern scientists. Besides, the study also brings light to some new *Karmas*, for example, *Sankhapuspi*, a well-known *Medhya* drug, has been found to be effective hypotensive and free from degenerating and depressing side effects which are shown by *Sarpagandha* (*Rauwolfia serpentina*).

### **Prayoga (therapeutic)**

The knowledge of the drug has no utility until and unless its efficacy on clinical levels is found assessable. Hence under the drug research, the therapeutic screening must be done including on human patients.

### **Manakikarana (standardisation of drugs)**

Standardisation of *Dravyas* (drugs) starts from the raw drug to finished products and standard from the same are to be laid down which are easily accepted by all. This should not only be based on the physical and chemical standards but the biological standards should also be fixed in relation to the drugs. In this regard, we should also adopt the new forms and access the old forms and processing by modern pharmaceuticals techniques. The National Pharmacopeia of Ayurveda is a must which should contain standards of each drug.

### **Vanausadhi Sarveksana and Aushadh Padap Krishi (survey & cultivation of medicinal plants)**

Survey of the medicinal plant involves the planning of a country-wise survey of the Ayurvedic drugs and incorporation of the specimens in a centrally located Herbarium and Museum. Moreover, the cultivation must be a focused part of the research as only good techniques can increase the production of raw material for Ayurvedic drugs.

In ancient time, the practitioners of the Indian System of medicine used to collect the drug samples themselves from the natural place of their

occurrence and they also used to cultivate many herbs around the place of their practice. This was done to ensure the genuineness of the drugs and procurement when needed. With the increasing demand of drugs, today the forests have been exploited unsystematically and this has resulted in the extinction of many plant species. This has to be looked into and Research methodology adopted for cereal and horticultural varieties have to be adopted for the improvement of medicinal plant species.

During the course of several medico-botanical survey work undertaken in the different parts of the country, it is observed that main drugs *Samhitas* and *Nighantus* were authentically identified, which were either completely unknown or controversial. Their action was verified by the trials in the economic assessment. Jaatukand is one the important Ayurvedic plants, known for its therapeutic potential.

### ***Jurinea macrocephala* DC. (Jaatukand)**

Jaatukand plant occurs in the verge alpine meadow, aerial stamps very short; leaves are radical from large flowers, head purplish; roots are blackish, fusiform, fragrant when rubbed (Fig. 1). Jaatukand has been mentioned in Dalhana's commentary and Sushruta Samhita as per following Roman Sanskrit shloka (Shastri, 2008).

*Kaaseesam katu rohinyo jaatikandvharidrayo.*  
(*Sushruta Samhita*)

*Jaatimolam jaatyajay atranyetu jaatukand iti pathanti,*  
*Tatra jaatukand gugulak uttarapathy prasidhah.*

(*Dalhana*)



**Fig. 1.** A photograph of *Jurinea macrocephala* from its natural habitat.

Recent studies on medicinal plants have tended to undertake that there is a great scope for looking up at the items of traditional important drugs which are now prevalent as folk medicine. It is interesting to note that folk-medicine heritage to modern

medicine which has been quite noteworthy in almost all the parts of the world. In Asia and particularly in India some of the folk-medicines have acquired a position in modern medicines (Table 1).

**Table 1.** Selected herbal medicines of Asian countries.

Drug	Country	Drug	Country
Nux vomica	India	Camphor	China, Japan, Formosa
Opium	Asiatic Turkey, India	Asafoetida	Persia, Afghanistan
Nicotine	India	Dhatura	India
Squill	India	Cinchona	Jawa, India
Santonin	Asiatic Russia, India, Afghanistan	Chaulmoogra	India, China, Malay, Thailand
India hemp	India, China	Rubard	China, India, Tibet, Nepal
Cinnamon cloves	China, India	Adhatoda	India, Persia
Psyllium seeds	Arabia, India, China	Aconite	India
Alstonia	India, Myanmar	Cassia	India
Catechu	Malaysia, India	Aristolochia	India
Bael	India	Holarrhena	India

It is a well-known fact that Sarpagandha (*Rauwolfia serpentina*) was used in ancient medicine to cure all ailments. Roots of the plant are a source of the drug from which the concept of tranquillisers became known to the Western world.

Similarly, the Black pepper (*Piper nigrum*) is one of the over 152 plants domesticated in India. One of the India's most important species, Nutmeg (*Myristica fragrans*) is also used in many medicinal preparations. Therefore, research work for the experimental cultivation of medicinal plants has to be done followed by its implementation for the mass scale cultivation of medicinal plants.

## GENETICS IN INDIA

The formulation of the laws of heredity by Mendel, the Austrian monk in 1865 and their rediscovery at the dawn of the present century ushered in the new science of Genetics whose impact on agriculture and animal husbandry, human health and population growth has been far reaching. Most of the useful plants and animals had already been domesticated by man 2000 years ago. Human ingenuity has improved their performance and yields to meet the needs of the growing population.

The Indian subcontinent with its varied soil, climate and physiography contain over 15,000 species of flowering plants of which more than 60% are native. India was one of the early centres of domestication of over 152 plants such as rice, sugarcane, banana, citrus, jute, mango, black pepper, cardamom, tamarind, neem, turmeric, mustard, ginger and bamboo.

Likewise, exotic crops such as maize, tobacco, potato, cotton, coffee, several ornamental and vegetables have not only flourished in India but have also become highly diversified. There are still innumerable unexplored and under utilised plants in India whose potential has not been realized.

## PLANTS TISSUE CULTURE

Research done in India in developing techniques of tissue culture has been recognised throughout the world. The area of research in plant tissue culture has to be enlarged for its application and development of the medicinal plant species. In this technique fragments removed from the plant under aseptic conditions can be grown in glass containers with nutrients, An unusual property of isolated plant parts, their ability to proliferate and regenerate whole new plants. This technique has been utilised in recent times to propagate mutant and elite plants of high economic value and even in such situations where sexual reproduction is either slow or difficult or impossible. The study of biogenesis of medicinal and pharmaceutical compounds and preservation and transportation of valuable germplasm and re-securing highly endangered plants are some of the enormous benefits to be gained by the application of tissue culture.

## CONCLUSION

The Research in drugs and their methodology is of considerable interest to the scientists, scholars and Pharmaceutical industries. The research should be based on the criteria including Ayurvedic concepts, *Pariksha, Anwiksha, Nam Rup Parichaya, Guna and Karma Gyan, Prayog Gyan, Manakikarna and Vanoshadhi Sarvekshan*. These may be facilitated with the help of latest scientific technology.

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**CONFLICTS OF INTEREST**

The authors declare that they have no conflicts of interest.

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