

PLANT RESEARCH IN A NEW PERSPECTIVE

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ABSTRACT: In India and elsewhere research on medicinal plant is purely oriented towards developing potential drugs from plants. The cue for its therapeutic activity was taken from hundreds of folklores, Ayurveda, Siddha, Traditional Chinese Medicine (TCM) etc., No effort has been made so far in the main stream for developing a protocol for plant research for medicinal purposes. China which embraced an integrated approach to revitalize the TCM has also been following the direction initiated by the West. India as well as China, should develop an independent methodology. The question is whether the research is to help develop new drugs for modern medicine or to help to enrich the indigenous health cultures.

INTRODUCTION

India has made substantial progress in the area of science and technology. Health science is one of the foremost among them. Right from the Vedic period till the 17th century there was definite progress on different aspects of this science. Ayurveda – is the embodiment of this knowledge system.

Ayurveda makes use of hundreds of natural substances for its therapeutic purposes. Plants are the major item among them. Ayurveda is based on the epistemology which is in line with the prevalent school of thought in India like the shaddarashanas. This epistemological foundation of Ayurveda which imbibes its strength basically from nyaya and vaisheshika schools of thought is the distinguishing character of all Indian Sciences. The pharmacology, pharmacognosy and pharmacy which constitute Ayurvedic plant Science has to be looked into from this perspective.

Indian intellectuals especially in the post independence due to colonial and other subjugation in political and social arenas failed to understand the internal strength and difference of Indian sciences from that of the Western ones. It is this difference in the epistemology that needs to be looked into if one has to understand the medicinal plants and its action in the body.

The body (the microcosm) and the universe (the macrocosm) are identical in terms of their components. *Yavanto bhava Moorthimatam Dehe-Thavantho loke-Yavantha Loke Thavantha Dehe.* Plant parts and the bodily elements are equated in terms of their basic constituents. Actually, the physician is said to be a conveyor belt between these two. One of the advices that Susrutha gives to us in his *Suthra Stana* Chapter 40 is to follow strictly the teachings of the *Agama* and not to do research on a plant without going to its base.

<i>Ameemayani</i>	<i>Achinthyani</i>	<i>Prasidhani</i>
<i>Swabhavatha</i>		
<i>Agamenopayogyani</i>		<i>Bheshajani</i>
<i>Vichakshanai</i>		
<i>Prathyakshalakshana</i>	<i>bhalan</i>	<i>oushadi</i>
<i>hetubhir vidwan</i>		
<i>Pareekshetha kadhanchana</i>		
<i>Sahasrenapi</i>	<i>hethunam</i>	<i>Nambashtadi</i>
<i>Virechayet</i>		

The present way plant research point towards isolating alkaloids or some secondary metabolites in no way contributes to the holistic approach of Ayurveda. The synergy of crude plant extract in different dosage forms dictated based on the *panchabhautik* structure of the same is the key to plant pharmacology according to Ayurveda. There can be two kinds of plant research.

The first one or the one universally followed by all researchers is taking a cue from an ethnic community or a classical text about utility of a plant and see its biological activity to isolate the active principles and try to synthesize it in the lab for bulk production and marketing. This is radically against the fundamental principles of Ayurveda and in no way contributes to the therapeutics of ayurvedic physicians who base their fundamentals on Tridosha theory or *Panchabhautik* principles.

The second way which the Ayurvedic community should prefer to follow is the research based on the fundamental principles of Ayurvedic Dravyaguna Shastra. If the plant research has to strengthen the resource base of traditional systems of health care, the outcome of research activity should meet the needs of these systems.

The best or worst example one always likes to give is that of Reserpin – the well known

alkaloid taken from the roots of *Rauwolfia serpentine*. It is nowhere today. The plants are active therapeutically and become one with the body, if taken and processed as a whole. The synergy of the different components is what Ayurveda depends upon to avoid any undue side effects.

It is true that the plant material becomes more potent when the components are isolated and used independently. But by this mere act, the whole concept of Ayurveda is lost and the side effects are produced. I recall former Professor Dhyani of Jamnagar University. “Take the man as a whole and take the plant as a whole”.

This does not mean that there is no scope for plant research in traditional systems. There are many grey areas which need substantial amount of work.

To quote a few:

- a) There are many plants described in *Veda*, *Samhitas*, *Nikhandus* and *Bhashyas*. Many of these plants are controversial due to different geographical appearance and utilization.
- b) There are many *divyoushadhis* mentioned in *vedas* and *samhitas* which are to be identified.
- c) There are many substitute plants (*prakshipta dravyas*) told in *Nikhandus* and *Bhashyas* which are to be studied for their legitimacy.
- d) There are many official parts which can not be sustainably harvested. Studies should be conducted to see the possibility of using other less damaging parts of a plant rather than the root systems.
- e) Many plants have become threatened, rare or engendered and

some are told to be extinct. There should be ways and means for its further regeneration in situ and ex situ conditions.

- f) Many of the traditional formulations use huge quantity of raw materials owing to the abundant availability of the raw materials in the past. Studies should be conducted to reduce the consumption of resources base without affecting its therapeutic value.
- g) Each geographical area is blessed with such plants and natural materials which are needed for the living beings of that area. The change in its *in vivo* and *in vitro* actions when grown in different climatic zone should be studied to find out the best ecotype of a species.
- h) The theoretical foundation of pharmacodynamics as explained in *Rasavaisheshikam* of Nagarjuna should be studied both pharmacologically and clinically to

come out with original contribution from Ayurveda.

- i) The permutation combinations between *Rasaguna-Veerya-Vipaka* of different plants should be studied based on ayurvedic principles to come out with better formulation and dosage forms.

These are but some of the suggestions towards the directions in which indigenous plant research should lead, if the research has to contribute to the traditional sciences. The short term benefits accrued from the present day plant research aimed at pure chemicals patentable and saleable in the international markets will definitely help the multinationals to bring in more riches to their coffers. Eventually, the plant research has to get direction from the knowledge based on which plants started to be used as medicines. And knowledge to be positive must have accessibility to the people at large and should have sole aim of helping the humanity to sort out their problems rather than helping a few to help others on a fee.