



A CRITICAL REVIEW OF CONTROVERSIAL DRUGS

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ABSTRACT

Ayurveda or Indian system of medicine has described many medicinal plants in its different classics. Material medica of *Ayurveda* is one of the earliest pharmacopoeias starting from vedic period. A large percentage of medicinal plants used in *Ayurveda* are subject of controversy. Practices of polynomial nomenclature, vernacular nomenclature system of Sanskrit, different perceptions in various communities, vernacular equivalents are cumulative factors for controversy. Poor understanding of literature, non-availability of plant and parallel evolved knowledge system are some of the reasons attributed to it. Controversial drugs or *Sandigdha Dravya* is a term used for medicinal plants which are mentioned in *Ayurvedic* classics but their exact botanical sources are not known. So it is quite necessary to develop reliable parameters and methodologies for correct identification and standardization of different medicinal plant sources having similar name to ensure good quality and efficacious medicinal preparations.

Keywords: controversy, *Sandigdha Dravya*, identification

INTRODUCTION: Amongst the various medicinal substances described in ancient India in medieval literature, we often come across with doubtful identification particularly with regard to the drugs of vegetable kingdom source. Not only, we have lost knowledge and source of certain plants but the physician and pharmacist alike are subjected to great dilemma when spurious and substitute drugs are brought before them. Added to this, there is wide discrepancy in the identification of even well known drugs between scholars of region to region. Therefore, it will be interesting and useful to go through these drugs critically from various aspects as revealed from not only *Nighantus*, but also from therapeutics of *Samhitas*, *Sangraha* and *Granthas*. Present attempt is made in the direction of correct identification and standardization of different medicinal plant sources.

Controversial drug or *Sandigdha Dravya* is that plants which are mentioned

in *Ayurveda* classics but their botanical identification is still not clear. Classical text has described herbs with many synonyms, which do not precisely indicate the botanical source but many a times attribute to therapeutic utility of the plant. For a single herb various synonyms are mentioned in *Ayurvedic* lexicons on the basis of morphology, habitat, origin, therapeutic uses which are leading causes of controversy E.g. *Amrita* is used both for *Guduchi* (*Tinospora cordifolia*) and *Haritaki* (*Terminalia chebula*) which are totally different drug.

Causes of Controversy:

1. Mistake while copying from the manuscripts: In older time, there was no proper way of documentation or printing. Acharyas had written the manuscript manually in Taala patra or *Bhurja* patra. While copying or translation of these manuscripts, some mistakes have been occurred by the writer or translators. These mistakes

remained sustained for long time and ultimately created controversy.

2. Geographical Variation: India is a vast territory ranging from Himalaya to sea region. Every area has its own kind of biodiversity which is different from other geological area. This geological variation causes unavailability of the plant species in a specific area which is available in other area. It leads to use of substitute drug.

3. Sketchy morphology: In the medieval period, authors briefed about morphology of plants in the way which was not sufficient to fully understand the structure of the plants and identification. This is also a reason for controversy.

4. Scattered information: In the past, due to lack of taxonomic system, it was difficult to understand the morphology of the plants properly which leads to the creation of controversy.

5. Lack of proper understanding of Sanskrit language: *Ayurvedic* literatures are originally written in Sanskrit language. Words of commentator add more diversity to its meaning creating future controversy. More over same Sanskrit word project different meaning under different context. Due to improper understanding and interpretation of Shlokas and their commentaries, controversies crept in. E.g. *pippala* indicates *Bodhivriksha* when used in male gender and while the same in female gender indicates long *pepper*.

6. Single synonyms given for multiple plants: In *Ayurvedic* lexicons a single synonym is used for two or more herbs which are totally different in morphology that creates controversy. E.g. *Amrita* is used for both *Guduchi* and *Haritaki*.

7. Nomenclature based on pharmacological action: Medicinal plants are named after their pharmacological actions. Same name given to two different plants

with approximately similar properties can create confusion and controversy in identification.

8. Vernacular nomenclature: Traditional system of vernacular nomenclature presents same medicinal plant with different name in different language regions. Due to this same plant is used under different name. Since India is country with variety of languages, name of a single plant has huge variety in synonyms. This is also a big cause of controversy. E.g. *Matala* in Tamil refers to *Punica granatum Linn.* Whereas in Kannada it pertains to *Citrus medica*.

9. Use of synonyms from non Ayurveda literatures: Use of synonyms of plants from non *ayurvedic* literatures like poetry, historical texts and other non- *Ayurveda* literature cause additional controversy in plant identification. E.g. *Kamala*, *Utpala*, *Kumuda*, *Kalhara* all is referred as same plant lotus in poetry but botanically they are different species.

10. Trend of polynomial nomenclature: Trend of giving different name to a single medicinal plant based on different criteria makes it difficult to identify a plant. Moreover a single name is assigned to two - three plants making it complicated to understand to which medicinal plant it means.

11. Controversy due to substitute: Due to non-availability and high cost of drug in the market, there are chances of substitution of drugs. After taking a substitute for a long time, the drugs own identity is lost and it is replaced by a substitute which later on creates controversy. E.g. *Pashanbhed* is used as *Ashmaribhedana* as the name indicates, so drug like *Bryophyllum pinnata* (pathar chura). But originally *Bergenia ligulata*(Wall.) Engle is identified as the source of *Pashanbheda*.

12. Adulteration: Adulteration is a mal-practice not only done intentionally but accidentally due to involvement of un-trained personnel in collection and trade.

Table no 1 : List of some controversial drugs

S.No.	Sanskrit name	Botanical name	Family
1	Pashanabheda	1. <i>Saxifraga ligulata</i> Wall.	Saxifragaceae
		2. <i>Aerva lanata</i> Juss.	Amaranthaceae
		3. <i>Kalanchoe pinnata</i> Pers.	Crassulaceae
		4. <i>Coleus arometicus</i> Benth.	Lamiaceae
		5. <i>Homonoia riparia</i> Lour.	Euphorbiaceae
		6. <i>Rotula aquatic</i> Lour.	Boraginaceae
		7. <i>Ocimum basilicum</i> Linn.	Labiatae
		8. <i>Iris pseudacorus</i> Linn.	Iridaceae
		9. <i>Ammania baccifera</i> Linn.	Lytharaceae
		10. <i>Bridelia retusa</i> Spreng	Euphorbiaceae
		11. <i>Didymocarpus pedicillata</i> R. Br.	Gesneriaceae
2	Raasna	1. <i>Pluchea lanceolata</i> Oliver & Hiern.	Compositae
		2. <i>Inula Racemosa</i> Hook. f.	Compositae
		3. <i>Vanda roxburghii</i> R.Br.	Orchidaceae
		4. <i>Acampe papillos</i> Lindl.	Orchidaceae
		5. <i>Tylophora asthmatica</i> W. & A.	Asclepiadeceae
		6. <i>Alpinia galanga</i> (L.) Wild	Scitamineae
		7. <i>Withania coagulens</i> (Stocks) Dunal	Solanaceae
		8. <i>Aristolochia indica</i> L.	Aristolochiaceae
		9. <i>Rauwolfia serpentina</i> (L.) Benth.ex Kurz	Apocynaceae
		10. <i>Viscum album</i>	Loranthaceae
		11. <i>Lochnera rosea</i>	Apocynaceae
		12. <i>Enicostemma littorale</i> Blume	Gentianaceae
3	Nagakeshara	1. <i>Mesua ferrea</i> L.	Clusiaceae
		2. <i>Ochrocarpus longifolius</i>	Clusiaceae
		3. <i>Dillenia pentagyna</i> Roxb.	Dilleniaceae
4	Sankhpushpi	1. <i>Convolvulus pluricaulis</i> Choisy	Convolvulaceae
		2. <i>Evolvulus alsinoides</i>	Convolvulaceae
		3. <i>Canscora decussate</i> Schult	Gentianaceae
		4. <i>Clitorea ternatea</i> Linn.	Papilionaceae
5	Brahmi	1. <i>Bacopa monnieri</i> (L.) Pennel	Scrophulariaceae
		2. <i>Centella asiatica</i> (L) urban	Apiaceae
6	Jeevanti	1. <i>Leptadenia reticulata</i> Wight and Arn.	Asclepiadaceae
		2. <i>Desmotrichum fimbriatum</i> Bl. Bidr	Orchiaceae
		3. <i>Cimicifuga foetida</i> Linn	Ranunculaceae
7	Daruharidra	1. <i>Berberis aristata</i> DC	Berberidaceae
		2. <i>Cosciniun fenestratum</i> (Gaertn.) Colebr.	Menispermaceae

8	<i>Twak</i>	1. <i>Cinnamomum tamala</i> Nees & Eberm	Lauraceae
		2. <i>Cinnamomum zeylanicum</i> Blume	Lauraceae
		3. <i>Cinnamomum cassia</i> Blume	Lauraceae
9	<i>Talish Patra</i>	1. <i>Abies webbiana</i> Lindl.	Pinaceae
		2. <i>Taxus baccata</i> Linn.	Pinaceae
		3. <i>Rhododendron anthopogon</i> D.Don.	Ericaceae
10	<i>Amaravela</i>	1. <i>Cascutta reflexa</i> Roxb.	Convolvulaceae
		2. <i>Cassytha filiformis</i> Linn.	Lauraceae

How to overcome controversy:

- Controversy about drug is mainly due to polynomial system of nomenclature in classical texts. *Naam roopa* (nomenclature and morphology) of drugs are clear in *samhitas* but controversy aroused mainly due to *Nirukti* (basonyms) and *Paryaya* (Synonyms) quoted by different *Nighantus*.
- Proper teaching and training about identification and authentication of original botanical source.
- Genuine coordinated & focused research on medicinal plants scientifically verified along with the documentation of traditional knowledge.
- Development of methods using morphological, histological, physiochemical and toxicological parameters.
- To make involvement and to take benefit of traditional practitioner, pharmacist and subject experts.
- Use of technology in microscopic and macroscopic identification of plants.
- Proper documentation of study data, their interpretation and ensuring its availability to all.

CONCLUSION: *Ayurveda* has a legacy of thousands of years and plant based medicines are very important component of total medicine available for treatment of various diseases. To ensure authenticity and efficacy of drugs, evaluation of plant

materials and their derived products has always been an important part of professional expertise of workers in field of discovery of Phyto-pharmaceuticals. A large percentage of medicinal plants used in *Ayurveda* are subject of controversy. So it is quite necessary to develop reliable parameters and methodologies for correct identification and standardization of different medicinal plant sources having similar name to ensure good quality and efficacious medicinal preparations.

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