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"SANDIGDHA DRAVYA: A CRITICAL REVIEW OF BOTANICAL IDENTITY DISPUTES IN AYURVEDIC DRUGS AND THE METHODS USED TO RESOLVE THEM"

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ABSTRACT
Sandigdha dravya are Ayurvedic drugs whose botanical identity is disputed, either because classical descriptions are insufficient or because different regions use different plants under one name. The problem affects research, manufacture and practice. A study of one plant cannot be generalised to another plant sold under the same name, and a formulation made from the wrong source may be ineffective or unsafe. This review examines representative disputed drugs and appraises the methods used to resolve disputes. Pashanabheda is supplied by *Bergenia ligulata*, *Kalanchoe pinnata*, *Coleus aromaticus* and *Rotula aquatica*. In a comparative rat study, all three tested sources were diuretic, *Coleus aromaticus* most strongly. Murva has five proposed sources, with only preliminary pharmacognostic data for each. The name Brahmi is applied to both *Bacopa monnieri* and *Centella asiatica*, and historical analysis suggests that the classical Brahmi was *Centella*. All market samples of Bala labelled *Sida cordifolia* in one survey were *Sida acuta*, and Guduchi is substituted by *Tinospora sinensis*. Five methods have been used to address such disputes: textual and lexicographic analysis, pharmacognosy, chemical fingerprinting, DNA-based identification, and comparative pharmacology. Each answers a different question. Textual analysis addresses what a text meant, DNA and chemistry what a sample is, and pharmacology which source works best. No single method is sufficient. We propose a structured multi-method protocol, with explicit separation of historical identity from therapeutic choice, and recommend a national register of disputed drugs linked to pharmacopoeial standards.

KEYWORDS: Sandigdha dravya, controversial drugs, botanical identity, Pashanabheda, Murva, Brahmi, Bala, pharmacognosy, DNA barcoding, Dravyaguna

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INTRODUCTION

Charaka teaches that a physician must know a drug by its name and form before knowing how to use it.[1] For many Ayurvedic drugs this first requirement is not met. Classical texts describe plants by name, synonyms and a few morphological or functional features, and over centuries the same name has come to be applied to different plants in different regions. Such drugs are called sandigdha dravya, drugs of doubtful or disputed identity.[2] Some disputes arise because descriptions are brief, others because a plant became scarce and a substitute took its name, and others because regional traditions developed independently.[3]

The consequences are practical. Pharmacological studies of one plant may be cited as evidence for a formulation made from another. Manufacturers in different regions may use different species under the same label. Clinical trials may test a source that differs from the one the classical text intended. This review examines representative sandigdha dravya, appraises the methods used to resolve identity disputes, and proposes a structured approach.

METHODS

This is a critical narrative review. We selected representative disputed drugs for which published comparative or analytical studies were available, and examined the methods used in those studies.

REPRESENTATIVE DISPUTED DRUGS

Table 1 summarises five examples.

Table 1. Representative sandigdha dravya and the evidence available.

Drug	Proposed sources	Evidence	Methods used
Pashanabheda	*Bergenia ligulata*, *Kalanchoe pinnata*, *Coleus aromaticus*, *Rotula aquatica*[4]	All three tested sources diuretic in rats; *C. aromaticus* strongest[4]	Comparative pharmacology, TLC
Murva	*Chonemorpha fragrans*, *Helicteres isora*, *Maerua* sp., *Sansevieria roxburghiana*, *Marsdenia tenacissima*[5]	Only preliminary pharmacognostic data[5]	Textual review, pharmacognosy
Brahmi / Mandukaparni	*Centella asiatica*; *Bacopa monnieri*[6]	Historical analysis identifies classical Brahmi as *Centella;*[6] frequent mislabelling in trade[7]	Textual and lexicographic analysis
Bala	*Sida cordifolia* and other *Sida* spp.	All market *S. cordifolia* samples were *S. acuta*[8]	DNA barcoding
Guduchi	*Tinospora cordifolia*; *T. sinensis*; *T. crispa*	Species-specific DNA markers and metabolomic models discriminate sources[9,10]	DNA markers, LC-HRMS metabolomics

Brahmi illustrates a different problem: a name that has shifted meaning. In modern commerce and research Brahmi usually denotes *Bacopa monnieri*, but a historical analysis concluded that classical Brahmi and Mandukaparni are synonyms for *Centella asiatica*, while *Bacopa* corresponds to a separate classical drug, Aindri.[6] The two plants are frequently mislabelled in trade.[7] Bala and Guduchi show how disputes are compounded by trade substitution. Every market sample sold as *Sida cordifolia* in one South Indian survey was *Sida acuta,*[8] and Guduchi may be substituted by other *Tinospora* species.[9,10]

METHODS FOR RESOLVING DISPUTES

Five methods have been applied to sandigdha dravya (Table 2). They answer different questions, and confusion often arises when the answer to one question is taken as the answer to another.

The most important distinction is between historical identity and therapeutic choice. Textual analysis can suggest which plant a classical author meant, but it cannot show which plant works best today. Comparative pharmacology can show which source is most active, but this does not prove that it was the classical drug. Several authors have argued that the more useful question is which source is most potent rather than which is historically correct.[2] Both questions are legitimate, but they should be answered separately and reported clearly. A pharmacopoeia may reasonably adopt the most effective and sustainable source, provided it says so, while historical scholarship continues independently.

Table 2. Methods for addressing identity disputes and the questions they answer.

Method	Question answered	Strengths and limits
Textual and lexicographic analysis	What plant did the classical author intend?	Uses synonyms, descriptions, co-occurrence and commentaries;[6] often inconclusive where descriptions are brief
Pharmacognosy	Does a sample match a defined morphology and anatomy?	Standard in pharmacopoeias;[11] limited for powders and close relatives
Chemical fingerprinting	Does a sample contain the expected markers?	Works on processed material; markers may be shared across species[10]
DNA-based identification	Which species is in a sample?	Precise for raw drugs with vouchered references;[8,12] not for extracts
Comparative pharmacology	Which source has the strongest relevant activity?	Guides therapeutic choice;[4] cannot establish historical identity

A STRUCTURED PROTOCOL

We propose that each disputed drug be investigated through the following steps.

- Textual analysis: compile all classical names, synonyms, descriptions and indications, and the views of commentators and Nighantu authors.[3,6]
- Field and market survey: identify the plants actually used and sold under the name in each region, with voucher specimens.[8]
- Authentication tools: develop pharmacognostic standards, chemical fingerprints and DNA markers for each candidate.[9–11]
- Comparative pharmacology: test the candidates side by side for the classical indication, using characterised material.[4]
- Decision and documentation: record the historical conclusion and the therapeutic recommendation separately, and adopt the recommended source in pharmacopoeial monographs with a note on alternatives.

A national register of sandigdha dravya, maintained by the pharmacopoeial authority and listing for each drug the candidate sources, the evidence and the officially accepted source, would make the current state of knowledge transparent to researchers, manufacturers and regulators.

LIMITATIONS

This review discusses representative drugs only. Some studies cited are preliminary or published in journals with limited peer review, and the historical conclusions presented are interpretations that other scholars may dispute.

CONCLUSION

Identity disputes affect many important Ayurvedic drugs and undermine both research and practice. Textual, pharmacognostic, chemical, genetic and pharmacological methods each address a different aspect of the problem, and none is sufficient alone. A structured protocol that separates historical identity from therapeutic choice, combined with a national register of disputed drugs, would allow Dravyaguna to meet its own first requirement: that a drug be known by its name and form before it is used.

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