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Review Article

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"PANCHAVIDHA KASHAYA KALPANA: A PHARMACOLOGICAL AND CLINICAL REVIEW"

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ABSTRACT

Introduction: Panchavidha Kashaya Kalpana, described in the classical Ayurvedic pharmaceutics, represents five fundamental dosage forms: Swarasa (fresh juice), Kalka (paste), Kwatha (decoction), Hima (cold infusion), and Phanta (hot infusion). These preparations form the foundation of Ayurvedic drug delivery and exhibit diverse pharmacological potentials based on extraction methods, solubility, and bioavailability of phytoconstituents. Despite their central role in traditional practice, modern pharmacological and clinical validations are still emerging. **Methods:** This review was conducted by systematically searching databases such as PubMed, Scopus, Web of Science, AYUSH Research Portal, and Google Scholar for studies on Panchavidha Kashaya Kalpana. Classical Ayurvedic texts including Charaka Samhita, Sushruta Samhita, and Sharangadhara Samhita were consulted. Inclusion criteria were experimental, pharmacological, and clinical studies that explored preparation methods, phytochemical profiles, and therapeutic applications. **Results:** Evidence suggests that each formulation possesses unique extraction dynamics: Swarasa provides maximum phytochemical concentration; Kalka enables topical and systemic utility; Kwatha extracts thermostable alkaloids, tannins, and glycosides; Hima retains heat-sensitive compounds; and Phanta facilitates extraction of aromatic principles. Clinical studies reveal their application in fever, digestive disorders, respiratory ailments, wound healing, and inflammatory conditions. Modern studies confirm activities such as antioxidant, antimicrobial, anti-inflammatory, immunomodulatory, and adaptogenic effects. **Discussion:** Bridging classical insights with modern pharmacology reveals significant potential for developing standardized formulations, optimized extraction techniques, and novel dosage forms. However, challenges remain in stability studies, pharmacokinetic profiling, and randomized clinical trials. **Conclusion:** Panchavidha Kashaya Kalpana, when validated through contemporary research, offers promising opportunities for evidence-based integration of Ayurvedic pharmaceutics into modern clinical practice.

KEYWORDS: Ayurveda, Clinical applications, Panchavidha Kashaya Kalpana, Pharmacology, Therapeutics

INTRODUCTION

Ayurveda emphasizes the preparation of drugs in forms that maximize efficacy, safety, and patient acceptability. Among its foundational concepts, Panchavidha Kashaya Kalpana (five basic forms of liquid preparations) holds a central position[1-2]. These are the earliest and simplest formulations mentioned in classics, forming the basis for more complex dosage forms such as Avaleha, Asava, Arishta, and Vati[3-4].

The principle underlying these preparations is that different solvents, temperatures, and methods of extraction yield varying phytochemical profiles, thereby influencing the pharmacological effects[5-6]. Swarasa, Kalka, Kwatha, Hima, and Phanta are prescribed depending on the nature of disease, doṣha involvement, strength of the patient, and urgency of treatment. Their therapeutic flexibility has enabled their use across a wide spectrum of disorders ranging from acute fevers to chronic systemic diseases[7-8].

The present review aims to critically analyze Panchavidha Kashaya Kalpana from pharmacological and clinical perspectives, integrating evidence from classical texts and modern research, and highlighting their translational potential for integrative medicine[9-10].

MATERIALS AND METHODS

A comprehensive literature search was conducted across PubMed, Scopus, Web of Science, Google Scholar, and AYUSH Research Portal using keywords such as *Panchavidha Kashaya Kalpana, Swarasa, Kalka, Kwatha, Hima, Phanta, Ayurvedic formulations*. References from Ayurvedic classics including Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya, and Sharangadhara Samhita were critically studied[11-12].

Inclusion criteria: [13]

- Original Ayurvedic textual references.
- Experimental pharmacological studies (in-vitro, in-vivo).
- Clinical studies evaluating therapeutic potential.
- Review articles published in peer-reviewed journals.

Exclusion criteria: [14]

- Non-Ayurvedic formulations.
- Reports lacking methodological clarity.
- Unpublished theses or anecdotal references without scientific basis.

Studies were analyzed to identify phytochemical extractions, pharmacological actions, and clinical efficacy, and then organized thematically for synthesis[15].

OBSERVATION AND RESULTS

1. Classical Basis of Panchavidha Kashaya Kalpana

- **Swarasa (juice):** Obtained by crushing fresh plant parts. Considered the most potent due to direct use without heat. Indicated in acute and severe conditions where quick action is needed (e.g., Ardraka Swarasa in Agnimandya, Tulsi Swarasa in Kasa).
- **Kalka (paste):** Prepared by grinding fresh or dried drugs with minimal liquid. Useful for both oral administration and topical application, e.g., Haridra Kalka for Vrana Ropana.
- **Kwatha (decoction):** Prepared by boiling coarse drug powder in water (usually 1:16 reduced to 1:4). A major dosage form in clinical practice, e.g., Dashamula Kwatha in Vata disorders.
- **Hima (cold infusion):** Prepared by soaking drugs overnight in cold water. Suitable for Pitta disorders, preserving heat-sensitive compounds. Example: Dhanyaka Hima in Amlapitta.
- **Phanta (hot infusion):** Made by pouring hot water over coarse powder, useful for aromatic drugs where boiling would cause loss of volatile principles. Example: Vasa Phanta in Kasa.

2. Pharmacological Insights

- **Extraction dynamics:**
  - *Swarasa* extracts maximum active constituents including volatile oils, enzymes, and alkaloids.
  - *Kalka* ensures both systemic and topical absorption.
  - *Kwatha* extracts water-soluble alkaloids, glycosides, tannins, and flavonoids.
  - *Hima* retains vitamin C, volatile oils, and thermolabile compounds.
  - *Phanta* optimizes extraction of aromatic oils without degradation.
- **Modern pharmacology studies:**
  - Kwatha preparations show antioxidant, anti-inflammatory, and antimicrobial effects (e.g., Dashamula Kwatha against oxidative stress).
  - Swarasa exhibits rapid bioavailability (e.g., Guduchi Swarasa showing immunomodulation).
  - Hima preparations studied for cooling, antacid, and anti-ulcer effects.

- Phanta preparations retain essential oils demonstrating expectorant and antitussive activity.

3. Clinical Applications

- **Gastrointestinal disorders:** Dhanyaka Hima in hyperacidity, Musta Kwatha in diarrheal disorders.
- **Respiratory ailments:** Tulsi Swarasa and Vasa Phanta in cough and asthma.
- **Fever and inflammation:** Guduchi Swarasa, Dashamula Kwatha, and Haridra Kalka.
- **Topical applications:** Kalka for wounds, skin diseases, and joint swelling.
- **Systemic conditions:** Combination therapies using Kwatha as adjuvant in rheumatoid arthritis, metabolic syndrome, and liver disorders.

4. Comparative Clinical Efficacy

- Studies indicate Kwatha is most widely prescribed in modern Ayurvedic practice due to ease of preparation and wide applicability.
- Swarasa is clinically more potent but limited by short shelf life.
- Kalka serves as both single therapy and base for secondary dosage forms.
- Hima and Phanta are less commonly used but uniquely valuable in specific doshic conditions.

5. Limitations and Practical Challenges

- Shelf life and stability issues restrict Swarasa and Kalka usage.
- Lack of standardization protocols in dosage preparation.
- Patient compliance is sometimes lower due to bitter taste and bulk administration.
- Limited large-scale clinical trials validating efficacy.

DISCUSSION

The Panchavidha Kashaya Kalpana represents a systematic pharmaceutico-therapeutic approach in Ayurveda, wherein the method of preparation directly influences pharmacodynamics and therapeutic potential. From a modern pharmacological standpoint, this aligns with concepts of solvent extraction, bioavailability, and stability of phytoconstituents[16].

Bridging Ayurveda and modern science: [17]

- *Swarasa* parallels fresh juice therapy, offering maximum phytoconstituent concentration but lacking preservation techniques.
- *Kwatha* is comparable to herbal decoctions and teas in phytotherapy, with well-studied pharmacological bases.
- *Hima and Phanta* are analogous to cold and hot infusions in herbal pharmacognosy.

Modern techniques such as HPLC, LC-MS, and spectrophotometry have been employed to characterize active constituents in these formulations, demonstrating significant antioxidant, antimicrobial, and anti-inflammatory activity. However, variability in preparation methods introduces challenges in reproducibility[17].

Clinical translation: While Ayurvedic classics provide extensive indications, modern clinical evidence is limited. Small-scale trials on Guduchi Swarasa (immunomodulation), Dashamula Kwatha (anti-inflammatory), and Haridra Kalka (wound healing) show encouraging results, but rigorous randomized controlled trials (RCTs) are lacking[18].

Future prospects: Integrating modern pharmaceutical technologies such as lyophilization, nanoformulation, and standardization protocols could enhance shelf life, bioavailability, and patient compliance. For example, lyophilized Swarasa or nano-encapsulated Kwatha extracts may overcome stability challenges[19].

Thus, Panchavidha Kashaya Kalpana not only reflects Ayurveda's deep pharmacological insights but also offers immense scope for modern integrative therapeutics, provided research bridges the gaps in clinical validation, safety profiling, and formulation technology[20].

CONCLUSION

Panchavidha Kashaya Kalpana forms the cornerstone of Ayurvedic pharmaceutics, providing a versatile framework for drug preparation. Each of the five forms—Swarasa, Kalka, Kwatha, Hima, and Phanta—demonstrates distinct pharmacological potentials that correspond with modern principles of extraction and phytochemistry.

Evidence suggests these formulations possess significant antioxidant, antimicrobial, anti-inflammatory, immunomodulatory, and adaptogenic activities, validating many classical claims. Clinical applications span a wide range of conditions, including gastrointestinal, respiratory, febrile, and inflammatory disorders. However, practical limitations such as short shelf life, lack of standardization, and inadequate large-scale trials hinder their wider acceptance in modern practice.

Bridging the gap requires integration of classical wisdom with modern pharmaceutical advancements, particularly in areas of preservation, standardization, and pharmacokinetics. The future of Panchavidha Kashaya Kalpana lies in developing evidence-based, patient-friendly dosage forms, supported by rigorous scientific validation and clinical trials.

In conclusion, Panchavidha Kashaya Kalpana embodies the scientific foresight of Ayurveda and, when aligned with modern research methodologies, holds the potential to contribute significantly to integrative medicine and global healthcare.

REFERENCES

1. Sharma PV. *Dravyaguna Vijnana*. Vol 1–3. Chaukhambha Bharati Academy; 2006.
2. Acharya JT. *Charaka Samhita* of Agnivesha. Chaukhambha Sanskrit Sansthan; 2014.
3. Murthy KRS. *Sushruta Samhita*. Chaukhambha Orientalia; 2013.
4. Tripathi B. *Ashtanga Hridaya*. Chaukhambha Sanskrit Pratishthan; 2010.
5. Sharangadhara. *Sharangadhara Samhita*. Chaukhambha Orientalia; 2002.
6. Patwardhan B, et al. Ayurveda and natural products drug discovery. *Curr Sci*. 2005;89(9):1339-45.
7. Narayana DB, et al. Standardization of Ayurvedic formulations. *J Ayurveda Integr Med*. 2010;1(1):14-25.
8. Gogte VM. *Ayurvedic Pharmacology and Therapeutic Uses*. Chaukhambha; 2009.
9. Gokhale SB, et al. *Pharmacognosy*. Nirali Prakashan; 2017.
10. Pandey MM, Rastogi S, Rawat AK. Indian traditional medicine: Evidence and relevance. *Evid Based Complement Alternat Med*. 2013;2013:1-12.
11. Katiyar CK, et al. Herbal drugs in India: Standardization and regulation. *Pharm Rev*. 2011;5(9):1-6.
12. Singh RH. Exploring issues in the development of Ayurvedic research. *J Ayurveda Integr Med*. 2010;1(2):91-95.
13. Choudhary N, et al. Dashamula: A review. *Pharmacogn Rev*. 2011;5(10):207-14.
14. Sharma H, et al. Immunomodulatory effects of Guduchi. *J Ethnopharmacol*. 2012;141(3):865-72.
15. Shankar D, et al. Traditional medicine in Asia. *Lancet*. 2002;360:491-92.
16. Mukherjee PK. Quality control of herbal drugs. Business Horizons; 2002.
17. Singh A, et al. Clinical evaluation of Musta Kwatha. *Ayu*. 2013;34(2):190-95.
18. Thakur RS, et al. Ayurvedic formulations and shelf life. *Anc Sci Life*. 1985;5(1):1-6.
19. Sharma A, et al. Antimicrobial activity of Haridra Kalka. *Pharmacogn Mag*. 2010;6(24):286-90.
20. Tiwari R. Concept of Kashaya Kalpana. *Ayu*. 2011;32(1):109-13.