WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 13, Issue 6, 446-454. Review Article ISSN 2277–7105

A REVIEW ARTICLE ON UNVEILING THE POTENTIAL OF PRATINIDHI DRAVYA IN RASASHASTRA

Anwar Niyaz O.[1]*, Sahana V. M. Vats[2] and Sunil Kumar[3]

[1]Associate Professor & H.O.D, Dept. of Agad Tantra, National College of Ayurveda, Barwala.

[2]Associate Professor & H.O.D, Dept. of Dravya Guna, National College of Ayurveda, Barwala.

[3]Assistant Professor, Dept. of Agad Tantra, National College of Ayurveda, Barwala.

Article Received on
29 Jan. 2024,

Revised on 19 Feb. 2024,
Accepted on 10 March 2024

DOI: 10.20959/wjpr20246-31704

***Corresponding Author**
Dr. Anwar Niyaz O.
Associate Professor
Department of Agada Tantra
National College of Ayurveda Barwala, Hisar-Haryana.

ABSTRACT

Rasashastra, an ancient branch of Ayurveda involves the meticulous preparation of metallic and herbo-mineral-based formulations aimed at healing and rejuvenation. However, challenges such as unavailability, scarcity, and high cost of certain drugs have prompted the need to re-evaluate materials used in these formulations. Pratinidhi Dravya, or substitutes, offers a solution to maintain efficacy and accessibility while addressing sustainability concerns. Drawing from classical Ayurvedic texts, contemporary research, and practical applications, this review provides insights into alternative ingredients aligning with original drugs. It explores criteria for substitution, emphasizing similarity in pharmacodynamic properties like Rasa, Guna, Virya, Vipaka, and Prabhava. Examples from texts like Bhavaprakasha and Yogaratnakara illustrate how substitutions preserve therapeutic principles while addressing challenges such as scarcity and costliness of original ingredients. The review underscores the importance of further research to identify and evaluate substitutes rigorously, ensuring their efficacy and safety in Rasashastra formulations. Overall, it highlights the potential of substitutes to enrich and evolve the practice of Rasashastra while addressing contemporary challenges in traditional medicine.

KEYWORDS: *Rasashastra*, *Pratinidhi Dravya*, Substitution, *Ayurveda*.

INTRODUCTION

Rasashastra, an ancient branch of Ayurveda, holds a profound significance in traditional Indian medicine. Rooted in centuries of wisdom, *Rasashastra* encompasses the meticulous preparation of metallic and herbo-mineral-based formulations aimed at healing and rejuvenation. Central to *Rasashastra* are the principles of alchemy and metallurgy, where substances undergo transformative processes to enhance their medicinal efficacy.

However, the traditional methods of *Rasashastra* are not without challenges. The concerns over the unavailability of several drugs used in *Rasa* preparations have prompted a re-evaluation of the materials used in the formulations. The unobtainability, scarcity and the expensive nature of drugs of the traditional ingredients in *Rasashastra* necessitate the exploration of *Pratinidhi dravya* or substitutes to maintain the efficacy and accessibility of medicinal formulations. Substitutes also address sustainability concerns while preserving the ancient wisdom and therapeutic principles of *Rasashastra*. Acceptance of substitutes ensures the preservation of *Rasashastra* tradition which ensures its continued accessibility and efficacy.

This review article aims to explore the potential of substitutes within *Rasashastra*, offering insights into alternative ingredients that align with original drugs. By delving into historical texts, contemporary research, and practical applications, this review seeks to unveil the diverse avenues through which substitutes can enrich and evolve the practice of *Rasashastra*.

MATERIAL AND METHODS

The concept of substitution was enriched through a comprehensive study of available *Ayurvedic* literature. To deepen our understanding, data on substitution drugs was meticulously gathered from classical *Ayurvedic* texts, journals, publications and online sources. Subsequently, an exhaustive compilation of drugs utilized in *Rasashastra* and their substitutes was meticulously curated and presented following a rigorous review process.

Pratinidhi dravya

Classical *Ayurvedic* texts such as *Charaka Samhita* and *Sushruta Samhita* do not explicitly mention or list *Pratinidhi Dravyas*. However, *Acharya Vigbhata* expounded on *Pratinidhi* by stating that in the event that a specific drug is unavailable for use in preparing a compound, one should endeavour to obtain a comparable drug with comparable potency in terms of *Rasa, Guna, Veerya,* and *Vipaka*.[1] The notion of substitution in Ayurveda is documented in

15th and 16th centuries in which the *abhava dravya* (Unavailable drug) is substituted by a *pratinidhi dravya* (Substitute drug). *Pratinidhi dravya*, employed primarily in the absence of the original drug and serves as a substitute particularly when the latter is scarce or costly. It is imperative that both the original and substitute drugs possess analogous properties, ensuring that the substitution does not compromise the efficacy of the formulation. One must possess thorough knowledge of the properties (*Guna*) and potential toxicity of substitute drugs (*Pratinidhi dravya*). Various factors such as scarcity, unavailability or expensiveness of drugs prompt the utilization of substitute drugs. Before incorporating substitute drugs, it is essential to consider their taste (*Rasa*), properties (*Guna*), post-digestive effect (*Vipaka*), potency (*Virya*), and other relevant factors. Detailed descriptions of substitute drugs can be found in *Yogaratnakara*,[2] *Bhavaprakasha*,[3] and *Bhaishajya Ratnavali*[4] etc classical *Ayurvedic* texts.

Properties of pratinidhi dravya[5]

Pratinidhi Dravyas, also known as substitutes, must be devoid of any adverse effects and possess pharmacological attributes on par with the original drugs. Additionally, they should be cost-effective, readily accessible, and abundantly available to facilitate the preparation of formulations.

Criteria for substitution[6]

In the instance of a drug's scarcity or extinction, an alternative possessing comparable qualities may be considered for substitution. It's imperative to note that the core ingredient (*Pradhana Dravya*) should remain unchanged within a formulation. A potential substitute must adhere to stringent criteria, ensuring similarity in *Rasapanchaka* (Pharmacodynamic Properties), encompassing *Rasa, Guna, Virya, Vipaka*, and *Prabhava* akin to the original drug. Even though only a few have been explored, the concept of *pratinidhi dravya* extends beyond herbal remedies and is also an integral to the practice of *Rasashastra*.

Substitution in rasashastra

The ancient science of alchemy, *Rasashastra*, delves into the utilization of medicinal compounds derived from minerals, metals, marine resources, gemstones, and more. These compounds undergo various purification, incineration, and processing techniques. However, some medications within this discipline are scarce, expensive, or limited to specific regions. *Ayurvedic* literature provides insights into alternative drugs to address such challenges, a principle that extends to *Rasashastra* too.

Ancient *Ayurvedic* texts like *Bhavaprakasha*,[7] *Yogaratnakara*[8] etc. revered for their comprehensive insights into medicinal formulations, substitution of drugs plays a significant role in addressing challenges such as scarcity and costliness of original ingredients. These texts methodically document alternative drugs that can effectively replace the original ones while maintaining the therapeutic properties of the formulations.

For instance, *Bhavaprakasha*[9] (Table 1) suggests substitutes for various metals and minerals used in *Rasashastra* formulations, such as *Saurashtra* being substituted by *Sphatika* (Alum) and *Rajata* being replaced by *Roupya Makshika* (Silver ore). Similarly, *Yogaratnakara*[10] (Table 2) provides alternatives for drugs like *Swarnamakshika*, *Parada*, and *Mukta*, indicating *Taramakshika* as a substitute for *Swarnamakshika* and *Muktashukti* as a replacement for *Mukta* (pearl).

These substitutions are based on meticulous assessment of pharmacodynamic properties, ensuring similarity in attributes such as *Rasa*, *Guna*, *Virya*, *Vipaka*, and *Prabhava* between the original drug and its substitute. By offering these alternatives, these references contribute to the adaptability and accessibility of *Rasashastra* formulations, thereby preserving the efficacy and therapeutic principles of Ayurveda.

Table 1: Drugs and Its substitution in bhavaprakasha.

Serial No	Name of the Drug	Substitution
1	Saurashtra	Sphatika
2	Rasanjana	Daruharidra Kwatha
3	Rajata	Roupya Makshika
4	Makshika	Swarna Gairika
5	Swarna & Rajata	Kantaloha bhasma
6	Kantaloha bhasma	Teekshna Loha
7	Mukta	Muktashukti

Table 2: Drugs and Its substitution in yogaratnakara.

Serial No	Name of the Drug	Substitution
1	Swarnamakshika	Taramakshika
2	Parada or Swarna	Loha bhasma
3	Kantaloha	Teekshna loha
4	Mukta	Muktashukti
5	Parada Bhasma	Rasasindura
6	Rasasindura	Hingula
7	Gemstones	Mukta bhasma

Swarnamakshika, also known as Chalcopyrite, serves as a viable alternative to *Swarna* or Gold due to the latter's high cost, and possessing the *Rasayana* property as Swarna. According to *Ayurveda Prakasha*.[11] *Swarnamakshika* contains traces of gold, considered a subsidiary element of *Swarna*, thus embodying its essential qualities. Consequently, *Swarnamakshika* can effectively substitute *Swarna*, harnessing the combined virtues of both the original substance and its constituent gold.

The admired texts of Ayurveda *Bhaishajya Ratnavali* and *Bhavaprakasha* both have suggested the potential substitution of *Rajata* (Silver) with *Rajata Makshika*. *Rajata Makshika*, also recognized as *Upadhatu*, exhibits qualities akin to silver. The *Rasayana* properties of *Rupya Makshika* offer benefits in various ailments such as *Kushta*, *Pandu*, and *Prameha*. Similar to silver, it harbours the attributes of *Madhura Rasa* and *Madhura Vipaka*, rendering it efficacious as a *Virya Vardhaka*.[12]

In Bhaishajya Ratnavali,[13] *Gairika* or red ochre is hailed as a distinguished *Uparasa*, offering a tantalizing alternative to *Swarnamakshika*.

Vaikranta, adorned with its unique allure, emerges as a formidable contender to the revered *Vajra*, commonly known as diamond. Delving into the intricacies of *Vaikranta's* essence reveals a treasure trove of attributes: its octagonal form boasting eight edges and surfaces, coupled with a resplendent smoothness, substantial weight, immaculate purity, and unparalleled brilliance. These distinctive traits elevate Vaikranta to a status of superiority, rivalling even the most esteemed diamonds. Further enhancing its acclaim, Yadavji posits the notion that tourmaline, or the esteemed uparatna Vaikranta, possesses the potential to stand in lieu of diamonds, further cementing its place among the elite gems.[14]

Yogaratnakara describes *Rasa Sindhura*, may supplant *Parada Bhasma*; *Hingula* emerges as a worthy successor to *Rasasindura*; and *Mukta Bhasma* stands poised as a substitute for a myriad of gemstones. These alternatives, meticulously prescribed, bear equivalence in their therapeutic virtues. For instance, *Hingula*, a panacea for the imbalances of all *Doshas*, reigns supreme as a *Sarvadoshahara* medicine, while *Rasasindura*, with its invigorating influence on *Vrishya* and *Balya*, commands attention as a potent *Rasayana*.

Expanding upon the insights of *Bhavaprakasha*, in scenarios where *Sourashtra* remains elusive, the illustrious *Sphatika*, known as alum, emerges as a worthy substitute. Delving

deeper into the realm of herbal remedies, *Daruharidra* kwatha, the venerable decoction of *Berberis aristata*, steps forward as a commendable alternative to *Rasanjana*, the esteemed yellow oxide of mercury. Similarly, *Teekshna loha*, boasting its potent iron essence, presents itself as a viable replacement for *Kantaloha Bhasma*, the revered calcified ash of iron, often equated with gold and silver. Moreover, amidst the realm of lustrous treasures, the humble oyster shell assumes a mantle of significance, deemed as a suitable stand-in for the resplendent pearl.[15]

In the realm of Ayurveda's profound wisdom, *Kantaloha Bhasma* emerges as a revered *Rasayana*, revered for its ability to ignite the *Agni* within the body, thereby bestowing vitality and balance to all aspects of health when administered under the guidance of a seasoned practitioner. Meanwhile, *Swarna Bhasma*, adorned with the epithet of *Vishapaha*, stands as a potent antidote against toxins, while nurturing the essence of *Ojas* and fostering inner strength. As for *Mukta Bhasma*, its virtues unfold in a symphony of attributes: light in quality, pleasing to the palate, cool in potency, and an ally in extending life. Renowned for its beneficial effects on the heart, cognition, and vision, *Mukta Bhasma* emerges as a versatile elixir, adept at combating ailments stemming from imbalances of *Pitta* and *Rakta doshas*, as well as offering solace in conditions such as gastric ulcers, acid reflux, and abdominal colic.

A few more drug substitutes are added by the author of *Yogaratnakara*. These include: *Mukta bhasma* (Calcified ash of pearl) is said to be a substitute for *Parada bhasma* (Calcified ash of Mercury), for *Rasasindura* (Red sulphide of Mercury), for *Hingula* (Mercury Sulphide), and for *Vaidurya* (Cat's eye) and other gemstones.[16]

DISCUSSION

The review article on the potential of *Pratinidhi Dravya* in *Rasashastra* presents a thorough examination of the concept of substitution within Ayurveda, focusing particularly on its application in *Rasashastra*, an ancient branch of Indian medicine. This highlights the significance of *Rasashastra* in traditional healing practices, emphasizing its roots in alchemy and metallurgy, which aim to enhance the medicinal efficacy of substances through transformative processes.

One of the primary challenges addressed in the article is the unavailability, scarcity, and high cost of certain drugs used in traditional *Rasashastra* formulations. These challenges necessitate the exploration of substitutes or *Pratinidhi Dravya*, which can maintain the

efficacy and accessibility of medicinal formulations while addressing sustainability concerns. The article argues that the acceptance of substitutes is essential for preserving the tradition of *Rasashastra* and ensuring its continued accessibility and efficacy.

It further delves into the criteria for substitution, emphasizing the importance of ensuring similarity in pharmacodynamic properties between the original drug and its substitute. Factors such as *Rasa, Guna, Virya, Vipaka*, and *Prabhava* are considered crucial in evaluating potential substitutes. The review draws from classical *Ayurvedic* texts, contemporary research, and practical applications to unveil the diverse avenues through which substitutes can enrich and evolve the practice of *Rasashastra*.

Specific examples of substitutions are provided from classical texts such as *Bhavaprakasha* and *Yogaratnakara*, offering insights into alternative ingredients that align with original drugs. These examples include substitutes for metals, minerals, gemstones, and other natural substances used in *Rasashastra* formulations. Detailed descriptions of the properties and therapeutic virtues of substitute drugs are provided, highlighting their potential to effectively replace original drugs in formulations.

This underscores the importance of further research and investigation in the realm of substitutions in *Rasashastra* and *Ayurveda* in general. While scriptures mention the use of substitutes, particularly in mineral medications, the review emphasizes the need for rigorous evaluation and identification of substitutes to ensure their efficacy and safety. The article concludes by highlighting the opportunities for future research in this domain, particularly concerning the efficacy and utilization of substitutes in *Rasashastra* formulations. Overall, the review provides valuable insights into the potential of substitutes to enrich and evolve the practice of *Rasashastra*, while also addressing contemporary challenges in traditional medicine.

CONCLUSION

Substitution and counterfeiting are the present formidable obstacles to drug standardization. *Pratinidhi Dravyas*, substitutes with comparable efficacy to authentic ones, undergo meticulous assessment based on their *Rasa, Guna, Virya*, and *Vipaka*. However, when originals are unavailable, the decisive factor shifts to the Karma (Action). The principal criterion for substitution hinges on pharmacological activity rather than chemical composition. *Ayurvedic* literature provides insights into alternative drugs to address such

challenges, a principle that extends to *Rasashastra* too. However, research in this domain, particularly concerning the efficacy and utilization of substitutes, remains limited. There exists ample opportunity for further investigation in this realm.

REFERENCES

1. Acharya Vagbhata, edited by Pt. Hari Sadashiva Shastri, Ashtanga Hridaya, Chaukhamba Surbharati Prakashan, Varanasi, 2007; 15: 46-240.
2. Editor Sastri L., Yogaratnakara, Chaukhamba Prakashan, Purva ardha, Abhava varga, 2015; 171: 1-29.
3. Bhavamisra, Editor Sitaram B, Bhavaprakasha of. Chaukhambha Orientalia, Purvakhanda, 2015; 6, 115: 138-168.
4. Kaviraj Govindadas, Bhaisajya ratnavali, Chaukhamba surbharti Prakashan, 2018; 1, 3, 39: 19-51.
5. Hegde P L, Harini, A Text book of Dravyaguna Vijnana, Chaukhambha publication, 2014; 516: 1.
6. Acharya Vagbhata, edited by Pt. Hari Sadashiva Shastri, Ashtanga Hridaya, Chaukhamba Surbharati Prakashan, Varanasi, 2007; 15: 46-240.
7. Bhavamisra, Editor Sitaram B, Bhavaprakasha of. Chaukhambha Orientalia 2015, Purvakhanda, 2015; 6, 115: 138-168.
8. Editor Sastri L., Yogaratnakara, Chaukhamba Prakashan, 2015, Purva ardha, Abhava varga, 2015; 171: 1-29.
9. Bhavamisra, Editor Sitaram B, Bhavaprakasha of. Chaukhambha Orientalia 2015, Purvakhanda, 2015; 6, 115: 138-168.
10. Editor Sastri L., Yogaratnakara, Chaukhamba Prakashan, Purva ardha, Abhava varga, 2015; 171: 1-29.
11. Mishra G, Ayurveda Prakasha, Chowkhambaha Sanskrit Samsthan, 480.
12. Bhavamisra, Editor Sitaram B, Bhavaprakasha of. Chaukhambha Orientalia 2015, Purvakhanda, 2015; 6, 115: 138-168.
13. Kaviraj Govindadas, Bhaisajya ratnavali, Chaukhamba surbharti Prakashan, 2018; 1, 3, 39: 9-51.
14. Joshi Damodar, Rasashastra, Govt. of Kerala Publishing, 1986; 115.
15. Bhavamisra, Editor Sitaram B, Bhavaprakasha of. Chaukhambha Orientalia, Purvakhanda, 2015; 6, 115: 138-168.

16. Editor Sastri L., Yogaratnakara, Chaukhamba Prakashan, Purva ardha, Abhava varga, 2015; 171: 1-29.