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## AYURVEDA VIEW ON *PRATINIDHI DRAVYA* AND THEIR APPLIED ASPECTS IN *RASASHASTRA*

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### Abstract

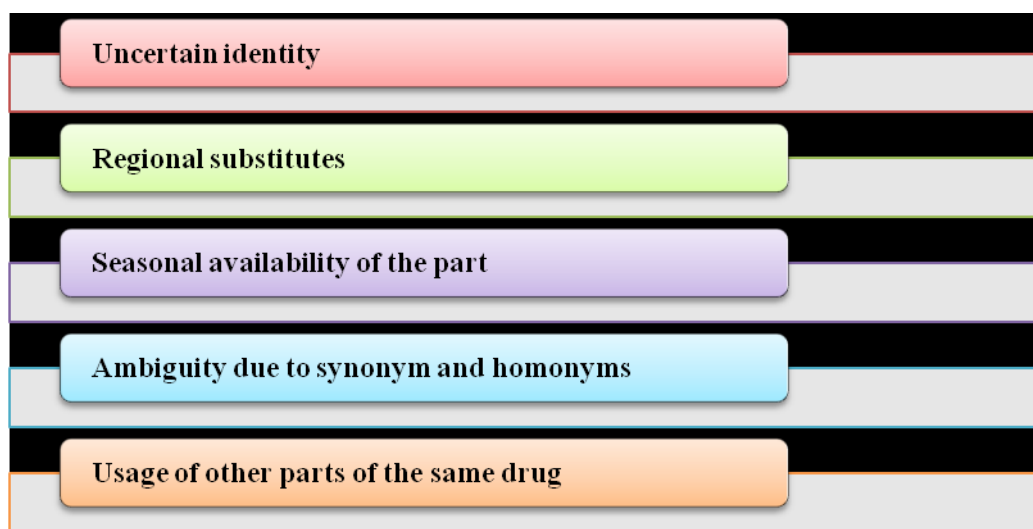
*Rasashastra* is an Ayurveda science which utilizes metals and minerals based formulations for therapeutic purpose. Precious gems, stones and marine drugs, etc. also processed with herbs for the preparation of *Rasa dravyas*. Some metals, mineral and gemstones, etc. are very rare and expensive. Thus in such condition there is requirement of drug substitution. The expensive and rarely available metal or mineral can be replaced with easily available and inexpensive substituent possessing similar properties. The substituent can offers desired property and therapeutic action thus in formulation non available or expensive ingredient can be substituted with drugs of similar properties. The uses of substitute provide desired effect without compromising the therapeutic efficacy of the product. Gold, chalcopryrite and silver, etc. are *Rasa dravyas* for which substitutes have been mentioned in literatures. The rarely available or expensive species is termed as *Abhav dravya* while drug used for replacement purpose is termed as *Pratinidhi dravyas*. Ayurveda *Rasashastra* also utilizes *Pratinidhi dravyas* in place of *Abhav dravya* in some specific conditions.

**Keywords:** *Pratinidhi, Abhav, Substitute, Swarna, Rasashastra*

## Introduction

The concept of *Pratinidhi dravyas* can be correlated with modern concept of drug substitution. The *Pratinidhi dravya* mainly used when there is absence of original drug (*Abhav dravya*). The *Pratinidhi dravya* (drug substituent) used in place of rarely available or expensive *Abhav dravya* considering the fact that both drug must possess similar properties and substitution should not affect the efficacy of formulation [1-4].

The drug formulator should be aware about the *Guna* of *Pratinidhi dravya* as well as any possible toxicity of *Pratinidhi dravya*. Loss on habitat, over exploitation of natural sources, cost, regional and seasonal variation, rare plant species and drug unavailability, etc. encourage uses of *Pratinidhi dravya* in place of *Abhav dravya*. The consideration of *Rasa*, *Guna*, *Vipaka* and *Veerya*, etc. of *Pratinidhi Dravyas* is prerequisite before their implementation. The *Pratinidhi Dravya* used after considering the condition of patient and progression of disease. Their utilization is rationale or logical in case of emergency. *Yogaratanakara*, *Bhavaprakasha* and *Bhaishajya Ratnavali* contain detailed description about *Pratinidhi Dravyas*. **Figure 1** depicted factors to be considered for selection of *Pratinidhi Dravya* [3-6].



**Figure 1: Factors associated with uses of *Pratinidhi Dravya*.**

As mentioned above these factors are to be considered while selecting *Pratinidhi Dravya* for specific purpose. *Pratinidhi Dravya* can also be used in the form of synthetic material, on the basis of morphological resemblance and regional substitutes, etc.

### **Drug Substitution in Rasashastra:**

*Rasashastra* is the science of alchemy which deals with the uses of drugs prepared from mineral, metals, marine and gemstones, etc. These drugs are prepared from the various processes of purification and incineration, etc. Some drugs are expensive and rarely available or only available in few places, to overcome these types of problems substitute drugs have been described in Ayurveda. This concept is also applicable for *Rasadravya* in *Rasashastra*.

The precious diamond and gold can be substituted with cheaper substituent with similar therapeutic properties. *Pratinidhi dravyas* utilizes with the rationale logic after the consideration of all necessary factors. The common *Pratinidhi dravyas* for minerals & metals are as follows:

1. *Vajra* can be replaced with *Vaikrant*.
2. *Swarna bhasma* can be replaced with *swarnamakshik*
3. *Mukta shukti* can be used instead of *Moti*
4. *Kanta louha* can be replaced by *Tikshna louha*
5. *Rasa sindur* can be used in place of *Parad bhasma*
6. *Abhrak bhasma* can be used in place of *Pukhraj bhasma*

Considering scarcity and unavailability the substitutes of *Rasadravya* and methods of artificial preparation has been mentioned in ancient texts. *Muktakarana* is artificial preparation method of *Rasadravya*. The method substitution also adopted in the practice of *Rasashastra* for examples artificial synthesis of orpiment, CuSO<sub>4</sub>, FeSO<sub>4</sub>, Alum and Borax, etc.

It is suggested that therapeutic use of processed substitutes of *Rasadravya* should be done by comparing respective processes of *Rasadravya*. Comparative studies should be carried out to analyze safety and efficacy of substituted formulation. Utilization of synthetic

drugs, newer drugs, modified technologies and adaptation of new purification measures, etc. also recommended for acquiring desired property of formulation of *Rasavarga Dravyas* prepared without unavailable or expensive *Dravya* [6-8].

*Swarna* possess *Rasayana* property and it is very expensive thus can be replaced with *Swarnamakshika* (Chalcopyrite). Some part of gold is present in *Swarnamakshika*, it is considered as *Upadhatu* of *Swarna* thus represents *Gunas* of *Swarna*. *Swarnamakshika* not only possess properties of *Swarna* but also exhibits properties of the other elements thus can be used effectively in place of *Swarna* (Gold).

The *Bhavaprakasha* and *Bhaishajya ratnavali* suggested that *Rajata Makshika* can be used as substitute of *Rajata* (Silver). *Rupya makshika* possess similar *Gunas* like *Rajata* (silver) and it is also considered as *Upadhatu*. Similar to *Rajata* the *Rupya makshika* possesses *Madhura Rasa* and *Madhura vipaka* thus can be used as *Veerya vardhaka*, the *Rasayana* property of *Rupya makshika* offers benefits in *Kushta*, *Pandu* and *Prameha*, etc.

*Gairika* means red ochre mentioned as *Uparasa* and can be used as substitute for *Swarnamakshika* according to the *Bhaishajya Ratnavali*.

The substitute of *Vajra* (Diamond) is *Vaikranta* (Tourmaline), it possess similar characteristic features and properties. *Vaikranta* has eight edges & surfaces; possess smooth nature, heavy and clean characteristics thus resemble all the characteristics of diamond.

*Bhavaprakasha* described *Sphatika* (alum) as substitute for *Sourashtra*, *Rasanjana* as substitute for gold and *Daruharidra kwatha* as substitute for silver.

*Yogaratanakara* described *Rasasindura* as substitute for *Parada bhasma*, *Hingula* as substitute for *Rasasindura* and *Mukta bhasma* as a substitute for other gemstones. These substitutes offer similar properties and therapeutic action i.e.; *Rasasindura* gives *Vrishya* and *Balya* effect, *Hingula* is *Sarvadoshahara* drug thus pacifies all *Doshas*. **Table 1** depicted common examples of substitute drugs mentioned in *Bhavaprakasha* & *Yogaratanakara* belongs from mineral and metal origin [8-10].

**Table 1: Substitute *Rasa dravyas* mentioned in *Bhavaprakasha* & *Yogaratanakara***

S. No.	<i>Abhav dravya</i>	<i>Pratinidhi dravya</i>
1	<i>Rasanjana</i>	<i>Daruharidra Kwatha</i>
2	<i>Makshika</i>	<i>Swarna Gairika</i>
3	<i>Swarna &amp; Rajata</i>	<i>Swarna Makshika &amp; Rupya makshika</i>
4	<i>Mukta</i>	<i>Muktashukti</i>
5	<i>Kantaloha bhasma</i>	<i>Teekshna Loha</i>
6	<i>Parada or Swarna</i>	<i>Loha bhasma</i>
7	<i>Parada Bhasma</i>	<i>Rasasindura</i>
8	<i>Gemstone like Vaidurya</i>	<i>Mukta bhasm</i>
9	<i>Rasasindura</i>	<i>Hingula</i>

**Prerequisite Qualities of Substitute *Rasa dravyas*:**

- The substitute should possess metallic or mineral like properties
- Should be compatible with other ingredients of formulation
- The *Pratinidhi Rasa dravya* can be processed or formulated as per the procedure which already mentioned for substituted drug (*Abhav dravya*)
- *Pratinidhi Rasa dravya* must be non-toxic and easily available
- Cost effective with desired palatability
- *Pratinidhi Rasa dravya* should retain the therapeutic potency of original drug.

**Conclusion**

The use of substitute drug is not very common practice for mineral and metal based drug but it is mentioned in the texts. However it is clearly indicated that the substitute drug should possess similar properties as like original drugs. The substitutes have been mentioned for precious, expensive or rarely available metals, minerals and gemstone, etc.

The substitution for Gold, Iron and Silver have been mentioned under the category of *Dhatus*, under the category of *Maharasa varga* the substitution mentioned for Chalcopyrite, in *Uparasa* group the substitution mentioned for *Anjana* and in *Ratna varga* the substitution mentioned for *Vajra*, *Vaidurya* and *Mukta*. The substitute possesses *Rasayana* and *Vrishya* properties thus can be used as *Rasa dravya*.

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