

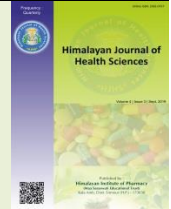


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Review Article

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### Concept of *Marana* and *Jarana* and their Role in *Rasashastra*: A Review

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#### Abstract

*Rasashastra* is the other name for science of mercury which is a part of Ayurveda. *Rasashastra* in both preventive as well as therapeutics has their importance. It deals with *Rasa dravyas*. *Rasashastra* works around the origin of the *Rasa dravyas*, their physical and chemical properties and classifications, with therapeutic benefits of these substances as well as about their applications. Metals and minerals are subjected to certain treatments before they are made fit for internal administration. One such process is called *Marana*, which is incineration of metals, making them into a form that cannot be returned to their original metallic state. Since metals are not assimilable in their natural state, it is necessary to process them into finer forms so that they can easily pass into the adipose tissue for absorption. *Marana* successfully eliminates the original physical properties of the metal while maximizing its therapeutic potential so that no toxic effects are left. Similarly *Jarana* is performed as transition procedure of *Rasa Shastra*, which is carried out before the performance of *Marana* procedures with metals like *Vanga*, *Yashada* and *Naga*. This article described concept and significance of *Marana* and *Jarana* procedures in *Rasashastra*.

**Keywords:** Ayurveda, Rasashastra, Marana, Jarana, Vanga, Mercury.

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#### 1. Introduction

*Rasashastra* is the branch of Ayurveda concentrated on the preparation of drugs with metals and minerals and among these, the mercury is said to possess prime therapeutic potential because it can amalgamate all other metals and minerals. *Rasashastra* deals with the preparation of medicines from minerals, metals, and gemstones. In Ayurveda, different processes related to *Parada* are called *Samskaras* among which *Shodhana* is one of the most important ones. *Shodhana* relates to the detoxification and purification of *Parada* using a variety of processes. *Charaka* defines *Samskara* as *Gunantaradhana* or an action that makes something's qualities superior. (1-3)

*Jarana* and *Marana* are two important procedures along with *Shodhana* which offers enormous pharmaceutical importance in the preparation of *Rasa dravyas*. *Marana* is the technique of nullifying the toxic effects of metals and minerals. This process makes the metal or mineral a safe and bio-available medicinal form. The main action of this process is the removal of intrinsic toxicity and acquirement of new medicinal properties by the

substance. Between *Shodhana* and *Marana*, there are some metals like *Vanga*, *Yashada* and *Naga* that must be subjected to a process called *Jarana*. In this process, metals are triturated with *Parada*, *Hartala* or plant material like *Palash Pushpa*, *Pipala twak* and *Apamarga Panchanga*. At temperatures between 400°C and 6000°C, this process transforms the metal into a fine, medicinally useful powder.

*Rasashastra* is aimed at using precise pharmaceutical measures as mentioned above for the conversion of toxic metals and minerals into medicinal preparations. Use of *Shodhana* along with *Marana* and *Jarana* ensures these substances are made safe, potent, and highly beneficial for different Ayurvedic treatments. (3-5)

#### 2. Marana

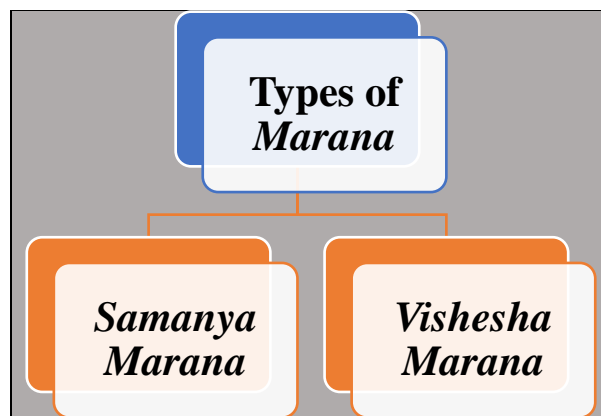
*Marana* means transformation of metals and minerals; they have to be prepared through *Marana* before the process of assimilation by the body. This technique ensures that the treated metal cannot revert to its former metallic form. Because metals, in their natural state, cannot be absorbed, they are prepared in an extremely fine

form so that they are readily absorbed by the adipose tissue. The most effective process leading to this transformation is *Marana*.

*Marana* is the important step in the formation of *Bhasma*. Here, the purified metals and minerals are repeatedly processed with herbal juices and other substances. The chemical nature of the metal is changed, which loses its original metallic properties and becomes bio-available. *Marana* usually involves; heating of metals in the presence of mercury, plant extracts, and sulfur followed

by repeated incineration with herbal media to purify the substance. (5-7)

During *Marana*, the metallic substance loses all its original physical properties and the medicinal properties, but it is free from poisonous or harmful effect, so safe for medicinal purpose. The whole process depends upon several factors which include dosage of the drug, the medium that is used during the process and other parameters in order to get safe therapeutic use. There is no strict classification, but generally, *Marana* is divided into two heads as depicted in **Figure 1**.



**Figure 1.** Types of *Marana*

As mentioned above *Samanya Marana* and *Vishesha Marana* are two types of *Marana*. *Samanya Marana* has a standard formulation designed for the general processing of all metals, while *Vishesha Marana* is targeted as a specialized formulation for a particular metal. The standardization of the *Marana* process depends on several physical tests, such as *Rekhapurnatva*, *Apunarbhavatva*, *Niruthatwa* and *Nischandrika*.

During *Marana*, several herbal juices and medicinal substances are mixed with the metals and minerals to form a paste that is then heated repeatedly. The advantage of this process is that when metals and minerals are converted into *Bhasma*, they become bio-available, mix well with the body fluids, and exert therapeutic effects without causing any adverse reactions. *Marana* is to be done in *Makshika*, *Abhraka* and *Vaikranta* before the medicines are used. *Marana* is not the process which only purifies metals and mineral but also imparts therapeutic and pharmacokinetic potency in final form of medicines. (6-8)

### 3. *Jarana*

*Jarana* means transition procedure of *Rasa Shastra*, it is an intermediate procedure, situated between *Shodhana* and *Marana*. Generally, *Jarana* is carried out before the performance of *Marana* procedures with metals like *Vanga*, *Yashada* and *Naga*. The ancient *Rasa Granthas* classify *Jarana* as a preliminary step. The preparation of *Jarana* of *Vanga* is done as per *Rasamrita*, whereby *Apamarga Panchanga* is used in the process, and then washed repeatedly to neutralize its alkali content with the help of *Prakshalana*, by which *Kshara-rahit Jarita Vanga Bhasma* is yielded. *Parada Jarana* is a process wherein *Parada*, or mercury, is made to assimilate, ingest and absorb various *Satvas*, which are essences extracted from

minerals and metals, in specific ratios. This procedure increases the potential of mercury to be used as *Rasayana*. (8-10) There are different types of *Jarana* as mentioned below:

1. *Bhuchari* and *Khechari Jaranas*
2. *Bala* and *Vridha Jaranas*
3. *Samukha*, *Nirmukha* and *Vasanamukha Jaranas*

The *Vanga Jarana* involves processing to purify *Vanga*, in the form of *Shodhita Vanga*, which is taken and placed in an iron pan. When it melts, pieces of *Apamarga Panchanga*, approximating about 510°C, are added. When melted tin interacts with the hot iron surface and *Apamarga*, it constantly scrapes against them, thus grinding into fine, ash-colored powder. The powdered *Vanga* is then gathered at the center of an iron ladle and covered with an earthen saucer. More heating is carried out until the mixture reaches a red-hot state. The heating is then stopped, and the material is left to cool down. The processed tin ash, *Jarita Vanga Bhasma* is mixed with its four times amount of water as a precaution, to remove out any residual alkalinity. (8-10)

### 4. Advantages of *Marana* and *Jarana*

- ✓ Removes harmful materials from metals/minerals.
- ✓ Increases Bioavailability
- ✓ Increases Potency
- ✓ Improves Assimilation
- ✓ Ensures Uniformity in final formulations.

### 5. Conclusion

Mercurial preparations are known for their fast-acting as well as long-acting curative properties, thus forming a major part of *Rasashastra*. This science, which is specifically related to metal and mineral-based medicines,

makes use of some specific methods that remove *Doshas* from mercury so that the preparation becomes more medicinal in nature. The classical Ayurvedic literature describes several procedures to detoxify *Rasa* drugs and bring out their medicinal benefits. The incompatible metals can be converted to biocompatible therapeutic forms with the help of various *Rasashastra* processes including *Shodhana*, *Marana* and *Jarana*. The impurities are removed from metals and minerals in *Shodhana*; *Parada* or mercury is purified without undergoing *Galena* or *Patina* transformations and *Marana* results in neutralization of toxic effects, thus adding medicinal potential to *Rasa Dravyas*.

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### Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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