

**A Chronology of Rasashastra from Vedic Era to Modern Era: A Comparative Study**

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**Type of Publication:** Original Research Paper

**Conflicts of Interest:** Nil

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**Abstract**

**Introduction:** Different system of medicine or pathways has been evolved globally with respect to time for achieving health which is a prime requirement of human being from past time. Necessity of a better system was fulfilled by the advent of mercurial system or Rasashastra. The concept of Rasashastra can be understood as detailed and scientific study regarding mercury. ‘Rasashastra’ or the ayurvedic alchemy is an important branch of ayurvedic pharmacology. This branch deals with the use of metals, minerals, gemstones and their processing.

**Material and Method:** References regarding Rasashastra were collected from various classical and Ayurveda published works, published research papers from Pub Med, Google Scholar and compilation was done with the aim of introducing chronological development of Rasashastra.

**Aim and Objectives:** In ‘Alchemy’, the primary motto was conversion of ordinary metals into gold, which is a higher and valuable metal. The experts applied the same analogy to the human body and found out that the ‘Sharirika Dhatu’ can also be enriched in the same way by the use of different metals. This study came to be known as the ‘Dehavada’.

**Result:** The study of dehavada and the use of metals were successful and it was found that the mercury was very useful and effective when compared to its other mineral and herbal counterparts.

**Conclusion:** Eventually, Rasashastra became a significant part of Ayurveda and has played a major role in the development of this science in later centuries. If the ayurvedic fraternity preserves the tradition particularly evident in Rasashastra, becomes contemporary by using new technological advances such as nano molecules to further develop and refine drug delivery systems.

**Keywords:** Rasashastra, Sharirika Dhatu, Ayurvedic Pharmacology, Dehavada.

**Introduction**

The events in the past are the key to proceed forward, have faith and also for right choice. Having collection of those facts make sense to the study. A Greek philosopher Herodotus (5th century BC) has been called the “father of history” because he was the first historian to collect and systematically document events and create an account. Different system of

medicine or pathys has been evolved globally with respect to time for achieving health which is a prime requirement of human being from past time. In spite of different system of medicine, all of them have basic two fundamental principles – removal of disease and maintenance of health for maintaining homeostatic condition in the body. This was not possible with ordinary health and medical systems, thus necessity of a better system was fulfilled by the advent of mercurial system or Rasashastra. The concept of Rasashastra can be understood as detailed and scientific study regarding mercury. This mercurial system has its roots with Lord Shiva and his lineage. Lord Shiva is “originator of rasa theory” and the tradition is shaiva sampradaya, the shaiva tradition. It shows dedication and devotion towards this system due to its main objective i.e. final liberation. Treatment with mercurial has been considered as “Divine Therapy”. Everybody has doubtlessly agreed upon the fast, gentle and permanent curing capacity of these drugs.

Though the writing of books on Rasashastra had started during 7th- 8th century A.D.; it dates back to antiquity. This is evident by the references we come across in Veda, Bramhana, Smriti and Samhita literature. Siddha Nagarjuna (8-9 Century A.D.) is known as “father of Rasashastra”. The evolvement of Rasashastra as a specialized branch is traced to the great Buddhist Sage Nagarjuna. Who is considered as ‘father of Rasashastra’. It is believed to have come into its proper existence with its scientific classification and documentation around 8th century. Nagarjuna proclaimed “Siddhe Rase Karishyaami Nirdaridryamidam jagat” - meaning that i am experimenting with the mercury to eliminate poverty from this world. The main foundation being the concept that the objective of the science of mercury is not limited to alchemy (dhaatuvaada) but also to maintain health and strengthen the body for achieving mukti i.e. ultimate salvation- the concept is incorporated in the philosophy of Raseshvar darshana.<sup>1</sup>

During the 12th century A.D., rasashastra was in the highest peak of popularity, resulting in numerous book being written in this century and afterwards being replete with drugs of mercurial kingdom. At present, every ayurvedic physician invariably uses rasa drugs.<sup>2</sup>

The origin of ‘ rasashastra ‘ has its roots in the Indian alchemy’. Alchemy was a form of chemistry studied in the medieval period, in which people tried to discover different ways to change ordinary metals into gold. This practice went on for centuries, yielding some of the significant findings in the field of alchemy.

History of Indian alchemy’ can be traced to pre-Vedic period. The archaeological excavations at Mohenjodaro and Harappa in the ‘Indus valley’ have brought to light that, the people in ancient India were possessing chemical knowledge as early as in the pre-historic period. In Vedic period, single herbs were used for medication. Minerals and animal substances were also in use but no compound preparations were prepared.<sup>3</sup>

Alchemy in India was started for the preparation of a ‘potion’ of life for imparting immortality and later for the transmutation process for converting ordinary metals into gold. Indian alchemy derived its color and flavor largely from the tantric cult.

Then, in later centuries, all the previous accumulated alchemical ideas were put to practical use and a number of preparations of mercury and other metals were evolved as helpful accessories in medicine.

‘Rasashastra’ or the ayurvedic alchemy is an important branch of ayurvedic pharmacology. This branch deals with the use of metals, minerals, gemstones and their processing.<sup>4</sup>

In the ancient Ayurveda the emphasis has been over the herbs and their therapeutic usages. Later on the animal products, metals and minerals started to find favor of the ayurvedic practitioners. The minerals and metals are very effective and potent for immunization, rejuvenation and the elimination of diseases<sup>5</sup>

### **Material and Method**

References regarding Rasashastra were collected from various classical and Ayurveda published works, published research papers from Pub Med, Google Scholar and compilation was done. Concept of Rasashastra was studied in detail and conclusion was drawn.

### **Result and Discussion**

The Word “Rasa” literally means Mercury (Parad) which has the power to digest and assimilate other metals like swarna and minerals like abhraka and mixes with them. Rasashastra is therefore translated as “science of mercury”.

Rasashastra is a branch of ayurveda, which deals with rasa, uparasa, lohas (minerals and metals), yantras, methods of shodhana, process of satwapatana, drutikaran, process of bhasma preparation etc.<sup>6</sup>

Rasashastra is a supportive branch of ashtanga Ayurveda which had developed in medieval period i.e. 8th/9th Century A.D. and onwards Chakradutta. Rasashastra deals with knowledge of alchemical and pharmaceuticals processes like ashtadasha samskaras of mercury. It deals with processes of different metals and minerals, ratnas, animal originated drugs, visha and upavisha dravyas in preparation of medicines. Rasashastra deals with therapeutic parameters of rasaushadhis like dose, duration, stability, indications and contraindications.

**Synonyms of Rasashastra:** Chemistry in ancient Ayurveda treatises were known as rasashastra, rasayan shastra, raseshwar darshan, rasatantra, rasakriya, rasavidya, rasavaad, vedic chemistry, rasa chikitsa and the forerunner of modern chemistry is alchemy.

According to raseshwar darshana, the aim of rasashastra is not only dhatu vaad for artha (money/richness) but the aim of Rasashastra is deha vada to attain final liberation/moksha. To attain salvation, the stable body is required and this stable body can be achieved only by means of mercury. Deha vada (rasayan-rejuvenation of the mind, body and spirit) and dhatu vaada (alchemy-turning mercury into gold) are two objectives of rasashastra. Basically rasashastra is a science of longevity, which considers each and every material of the universe as useful. Under the study any natural resources, minerals or metals, is to be used in a fusion state “druti”.

Absorption and stability of such minerals and metals in the tissue of the body is called “sthirikarana” and the state of such drug is called “rasi bhavana”. Every rasausadhis are required to come to this Stage. This whole science with the ultimate aim of liberation is called “Rasashastra”.<sup>7</sup>

**Rasa:** In ‘Rasashastra’, the term rasa is indicative of ‘parada’ (mercury). Rasa (mercury) is a silver colored liquid metal which is scientifically identified as ‘Hydrargyrum’ or ‘Quick silver’. Its symbol is Hg, atomic weight 200.6; specific gravity 13.6 and boiling point 57°C. By nature, it is capable of digesting other metals and minerals that come in contact with it. Therefore, it is defined as; since the mercury does, the ‘rasana’ or ‘aswadana’ (engulf) of ‘abhrakadi rasa dravya’ and ‘swarnadi dhatu’ it is called as ‘rasa’. Since its judicious therapeutic use slows down aging process (jara), heals many diseases (ruja) and delays death (mrityu) it is called as ‘rasa’.

The one, which can digest all the other metals and minerals in it, is called as rasa. The one, which is most prominent out of all the maharasa, uaparasa and sadharana rasa dravya is called 'rasaraja' i.e. parada.<sup>8,9</sup>

According to Rasaarnava, the one, which remains in liquid state is called as rasa and the essence or the shukra of 'Lord Shiva' is called as 'rasa'.

**A unique Philosophy of the Mercurial system 'Raseshvar Darshana':** Rasashastra is based on a unique philosophical thought system called Raseshvar darshana (mercurial system of philosophy) which is given as a separate chapter in the book 'Sarva Darshana Sangraha' written by Sayana and Madhava. The final liberation, moksha or mukti means the state of no return achieved after death, i.e. liberating the soul from births and deaths is described as per the version of all philosophical school of thoughts of India. But according to raseshvar darshana, liberation should be attained during one's life time itself, i.e. negating death forever. This is known as jivan mukti (lively liberation). Ultimately by refusing death, one is also liberating the self from the chain of birth and death. Those who have attained this are called 'Siddhas', especially rasa siddhas as they attain the state of lively liberation (jivan mukti) with the help of rasa (mercury). According to them the liberation, attained after death is useless, as mean creature can also achieve this. Human incarnation is the best of all in the process of evolution. Therefore to show the uniqueness of the race of human beings, man should strive for attaining the Moksha or liberation during ones life time itself. According to classical textbook 'Rasarnava' of Rasashastra, that attaining liberation after death is useless and it can be achieved even by a donkey.<sup>10</sup>

**Lohasiddhi and Dehasiddhi:** With the advent of 'Rasashastra', its evolution was seen with two mottos. One was lohasiddhi, where the trial and error methods were carried out to convert lower metals into gold. This was based purely for commercial purposes.

Attaining 'dehasiddhi' through 'rasashastra' had the motto of retaining good health and virility as long as possible. In this quest, many medications were formulated and put to test. Here many useful medicines were prepared, which were of great help to humans to maintain their good health.

**Deha Vada:** Parada was used for jivan mukti by raseshwar darshan which was ultimate aim of rasashastra. When Parada undergoes different procedures like ashtadasha samskara, it become so potent and known as "Mahaushadha-Hara Gauri Rasa" by which the body became healthy, strong and one can attain moksha i.e. "dehavada".

**Dhatu Vada:** Due to kramana samsakara the new utility of rasashastra was found by rasa scholars which was "dhatuVada". In which ashtadhasa samaskarit parad was being used to convert lower metal into higher metals. But during the course of time the main aim, dehavada was totally repalced by dhatuvaad for aishwarya prapati and dhana prapati.

**Chikitsa Vada:** In late Boudha kala, rasashastra was in it's peak popularity. In late Boudha kala priority of the rasashastra was change from "dhatu vada to chikitsa vada". So from late Boudha Kala period, rasashastra was being used to strengthen the body and to cure various diseases of the body i.e. "chikitsa vada". Among 18 samskara of parada (Hg), the first 8 samskaras, on which almost all the authors have no difference of opinion, are considered as useful to make mercury eligible for adding into medicines and for internal administration. The remaining 10 are aimed at alchemical and body transmutation process and hence not necessary for medicinal purposes.

**Rasa Etymology:** The word Rasa covers more than 40 senses in literature but mainly it means liquid, mercury (parad), potion, taste, poison, cosmos, nectar, seminal fluid of Lord Shiva, any mineral or metallic salt, a metal or mineral in a state of fusion, taste of enjoyment or interest, Taste experienced by the taste buds in the tongue (rasana), rasa is swarasa (the juice extracted) or the niryasha (exudate) of herbal, Rasa is the first dhatu (out of saptadhatu) of the body, rasa word is indicative of emotions expressed, like shringara rasa, hasya rasa, roudra rasa etc. ; rasa is meant to be 'Brahma' the creator, as per 'vedic literatures', rasa is meant as 'jala' (water) in some contexts, rasa is also meant as 'amrita' (nectar).

**The Doyens of Rasa Shastra:** The propagators of Rasa Shastra can be divided into four groups as per chronological order like daiva sidhha, daitya sidhha, muni sidhha and manava sidhha.<sup>12</sup>

Daiva sidhha the divine group, consisting of Lord Shiva, Goddess Parvati, Nandi, Bhairava, Vinayaka, Kartikeya and Virabhadra, Brihaspathi, Chandra, Bramha and Vishnu, etc. Daitya sidhha the demons like Shukracharya, Bali, Ravana, Banasura, etc.

Muni sidhha the sages like Agastya, Kapila, Vala khilya, Bhaluki, Maandavya, Vyadi, Dattatreya, etc.

Manava sidhha like Nagarjuna, Bhairavananda, Bhaskara, Matsyendranatha, Gorakshanatha, Ratnaghosa, Surananda, Kapalika, Kakchandishvara, etc.

**Rasa Acharya:** Rasa Shastra was developed mainly by rasa-siddhas and tantrikas. Total no. of rasa-siddha is 84. Nagarjuna was one of the rasa-siddhas. Acharya Sarabha was considered the first siddha of rasa vidya, while Nagarjuna was second one. Nagarjuna is regarded as an eminent acharya of rasashastra. The prominent names that are usually counted as 'rasacharya' are; Vyadi (Vyadacharya), Nagarjuna, Chandrasena, Banasura, Lampata, Munishrestha, Kapila, Naravahana, Surananda, Maṇḍavya, Vadava, Kapalika, Tatvika, sharada, Govinda, Bhaskara, Indrada, Satvika, Gomukha, Brahma, Hari, Ratnakosa, Kambali etc.

### **Natha and Siddha Sampradaya**

The practice of mercurial system is divided into two traditions i.e. 'Natha sampradaya' and 'Siddha sampradaya' (depending on their names) who have immensely contributed in the development of 'rasashastra'. According to Aanandakanda<sup>13</sup>, there are 9 Natha and 16 Siddha whose names are mentioned below:

**Nine Natha:** Adinatha, Minanatha, Gorakhanatha, Konkashwara Nath, Jalandhara Natha, Kandhanisa Natha, Uddisa, Chiniciniswara Natha, Chouranginatha.

**Sixteen Siddha:** Chourangi Siddha, Charpaṭi Siddha, Ghoda Coli Siddha, Rama Siddha, Bhola Siddha, Govinda Siddha, Vyadi Siddha, Nagarjuna Siddha, Koranda Siddha, Surpakarna Siddha, Mukhtayi Siddha, Revana Siddha, Kukkurapada Siddha, Surpapada Siddha, Kanairava Siddha and Kinkinika Siddha. According to Hathayoga pradipika<sup>14</sup>, there are 7 Natha and 31 Maha Sidhha. Seven Natha are- AadiNatha, MatsyendraNatha, GorakhaNatha, MeenNatha, NityaNatha, BinduNatha and BhairavaNatha.

**Thirty One Maha Siddha:** Aadinatha, Matsyendranatha, Shaavaranatha, Bhairava, Chourangi, Meennatha, Gorakha Natha, Virupaaksha, Vileshaya, Manthanabhairava, Sidhhibuddha, Kanthadi, Kodanda, Surananda, Siddhipada, Chaparti, Karneri, Pujyapada, Nityananath, Niranjana, Kapali, Bindunatha, Kakchandishwor, Allabha, Prabhudeva, Ghodacholi, Tinitani, Bhaluki, Nardeva, Khanda and Kapalika.

**Significance of Rasouashadhis:** In the modern ayurvedic practice, ‘rasashastra’ has been considered more useful and effective when compared to the herbal preparations. It is said that the ‘rasashastra’ has immense therapeutic applications some of which are prevention of ageing and reduction in age-related disorders. Some other features that make ‘rasashastra’ or rasa preparations more significant than the other preparations are: According to acharya Vagbhata, the ‘rasaushadhis / bhasmas ‘ are known therapeutically effective even when administered in smaller dose. They do not cause any nauseating sensation during consumption i.e. palatable / agreeable. These medicines are being capable to producing quick relief provide quick results and they are useful in majority of difficult to cure disease conditions.<sup>16</sup>

According to Bhaishajyaratnavali, While using rasaushadhis (rasa-chikitsa) the physician may give minimal attention towards the dosha involvement (ekadosha, dwidosha and tridosha), disease condition (origin and the prognosis of disease condition), gender (male, female) of the patient, the place (jangama, anupa and sadharana) and the kala of treatment (season of disease origin and treatment).<sup>17</sup>

According to Rasendrasara sangraha, the physicians who treat the patients with ‘rasaushadhis’ were considered ‘uttama’ vaidya. Those who treat with ‘kasthaushadha’ are considered ‘madhyama’ and those who follow ‘surgical procedures’ were considered ‘adhama’ vaidya.<sup>18</sup>

According to acharya Vagbhata, therapies are of three categories, aasuri - demoniac (which includes surgical therapies), manusi - human (which includes use of decoctions etc.), and daivi-divine (which is performed by administration of metallic and mineral preparation. The succeeding ones are superior to the preceding categories of therapies. i.e. Rasashastra.<sup>19</sup>

The learned exponents of the medical science have prescribed variety of medicines to treat only the curable disorders. However the rasa drugs are at their disposal to treat even the incurable ones.

Therefore the Science Rasashastra (science of rasa drugs) is superior over the others. According to classical text ‘Rasendra chudamani’, the Mercurial Compounds produces diversified actions in very minute doses by quick metabolization and assimilation. Those who can’t take these medicines are nothing but fools and fully downed in the sins of previous life.<sup>20</sup>

Etymologically speaking the term ‘rasashastra’ is derived from the words ‘rasa’ (mercury) and ‘shastra’ (science). In ‘alchemy’, the primary motto was conversion of ordinary metals into gold, which is a higher and valuable metal. The experts applied the same analogy to the human body and found out that the ‘sharirika dhatu’ can also be enriched in the same way by the use of different metals. This study came to be known as the ‘dehavada’. The study of dehavada and the use of metals were successful and it was found that the mercury was very useful and effective when compared to its other mineral and herbal counterparts. In the earlier days, tantric made use of the ‘rasa chikitsa methods for achieving immortality and these experiments were later utilized for the ayurvedic treatments. The modern ayurveda makes an extensive use of the ‘rasashastra’ so much so that it has become the vital or inseparable component of the therapeutic process. We all know that, ‘rasashastra’ is not counted among the eight branches of ayurveda. This is indicative of the fact that ‘rasashastra’ in its initial days was developed as an independent pharmaceutical science. Eventually, ‘rasashastra’ became a significant part of ayurveda and has played a major role in the development of this science in later centuries.



‘Rasashastra’ is the special science, which drugs are pharmaceutically processed and rendered fit for internal administration.

**Concept of Rasa Rasayana:** Use of the term ‘rasa’ and ‘rasayana’ together is indicative of the fact that the ‘rasausadhis’ were prepared and consumed in the initial days (tantric period) only for ‘rasayana’ (rejuvenation) effect. Since, ‘rasashastra’ originates from ‘tantric cult’, all the efforts put into the preparation of rasa medicines was either for rasayana (rejuvenation) or for vajikarana (aphrodisiac effect). However, the wide range of rasa medicines prepared now, are having wider therapeutic applicability. They are known for their faster action in smaller doses, quicker assimilation, excellent therapeutic values, longer shelf life and easy preservation.

### Conclusion

Today there are some living traditions those are dealing in rasasushadhis. The typical ‘teacher disciple’ system is on the verge of extinction. Small and big Pharmaceutical companies are manufacturing these medicines and they generally are allowing the traditional rules. Recent technological advances offer a better quality management and big firms make sure its usage; however smaller ones do not think it is necessary. At the government level, guidelines do exist but as usual the problem of implementation remains true here also. The manufacture of the bhasmas are region specific in terms of raw drug, processing drugs, equipment and therapeutic uses making it cost effective and therefore affordable by the local population. Majority of such good and potential medicines cannot be made available to a wider section of population very easily. On the other hand all the above said things are subjective and one has to rely on the manufacturing person’s words for quality standards and use, which vary considerably from person to person and region to region as the surveys reveal.

To conclude, now we can say that the study of Rasashastra reveals the following major facts:

- Identification of Metals and Minerals
- Usage in clinical practices
- Understanding of their toxic nature
- Process development to nullify toxicity
- Single and complex formulation development
- Documentation of toxic signs on humans and its management.

If the Ayurvedic fraternity preserves the tradition particularly evident in rasashastra, becomes contemporary by using new technological advances such as nano molecules to further develop and refine drug delivery systems, then the future is bright. At the same time quality assurance system needs to be strengthened and be more rigorous, considering the hazardous potential of the raw materials.

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