

Project Report

English Translation of *Rasendra Cūḍāmaṇi**

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Abstract

The usage of non-herbal and herbal drugs in Āyurveda had eventually lead to the origin of a *rasaśāstra* that flourished after 700 AD. This pharmaceutical branch of Āyurveda exclusively uses metals, minerals, gems, drugs of animal origin and poisonous plants while mercury being the most common and important drug used for the preparation of medicines. There are many documented literature available on *rasaśāstra*. The *Rasendra Cūḍāmaṇi* (12th – 13th Century AD) written by Ācārya Somadeva is one of the important original texts on *rasaśāstra* written in Sanskrit. This text influenced significantly on later books of *rasaśāstra* including *Rasa Ratna Samuccaya*, another classic written later in 13th century which is considered to be most authoritative classic of *rasaśāstra*. The *Rasendra Cūḍāmaṇi* comprises of 16 chapters with 1398 verses and covers topics like 18 different processings of mercury, varieties of Mercury *bhasmas*, solidification of mercury, purification, incineration and metal extraction of various drugs, properties and actions of various *rasaśāstra* drugs in the groups like *mahārāsa*, *uparāsa* and *sādhārāṇa rāsa* which comprise different mineral ores, and metals and gems etc. English translation of the entire text *Rasendra Cūḍāmaṇi* from first to sixteenth chapters with essential critical notes has been done under this project in a systematic way. It is useful for the learners and experts of alchemy and iatrochemistry in understanding its root in ancient Indian tradition, and helpful for newer experiments.

INTRODUCTION

In the history of medicine in India, Ayurveda has the privilege of serving as one of the major health care systems for a larger period of time in Indian subcontinent. In the initial phase of emergence of Ayurveda, the drugs of herbal origin were predominantly used in the period starting from *Vedas* to *Bṛhatrayis* (three major ancient classics of Āyurveda, namely *Caraka Saṃhitā*, *Suśruta Saṃhitā* and *Aṣṭāṅga Saṃgraha/Aṣṭāṅga Hṛdaya*), dating from antiquity to 700 AD. However in a number of contexts drugs of non-herbal origin like metals, minerals, gems and animal products have been used in this period also. The *Rasaśāstra* which flourished after 700 AD uses metals, minerals, gems, drugs of animal origin and poisonous plants while mercury being the most common and important drug used for preparation of medicines. There are many

documented literature written on *Rasaśāstra*. The major ones are: *Rasendra Maṅgala* (8th Century), *Rasārṇava* (10th Century) *Rasa Hṛdaya Tantra* (12th Century), *Rasa Ratnākara* (12th Century), *Rasendra Cūḍāmaṇi* (12th-13th Century), *Rasa Prakāśa Sudhākara* (13th Century), *Rasa Ratna Samuccaya* (13th Century), *Rasendra Sāra Saṃgraha* (15th Century), *Āyurveda Prakāśa* (17th Century) and *Rasa Taraṅgiṇī* (20th Century).

Rasendra Cūḍāmaṇi (12th-13th Century AD) written by Ācārya Somadeva is one the important original text on *rasaśāstra* written in Sanskrit. Somadeva was the king of Bhairavapuri. The present place for Bhairavapuri referred by the author himself is not clear. However, some of the historians of Ayurveda believe that he may have born in Rajasthan and settled in Gujarat. There are some translations of the book available in Hindi, but this important book remained

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untranslated from Sanskrit to English till now. This text has influenced significantly on later works of *rasaśāstra* including *Rasa Ratna Samuccaya*, another classic written later in 13th century which is considered to be most authoritative classic of *rasaśāstra*.

The *Rasendra Cūḍāmaṇi* comprises of 16 chapters with 1398 verses and covers topics like 18 different processing of mercury, varieties of mercury *bhasmas*, solidification of mercury properties and actions of various *rasaśāstra* drugs in the groups like *Mahārasa*, *Uparasa*, *Sadhāraṇa rasa*, metals and gems etc. These are :

- I. Importance of mercury
- II. Initiation of the student
- III. Construction of pharmacy
- IV. Terminologies
- V. Equipments, crucibles, furnaces and quantum of heat
- VI. Divine herbs (*Divyauśadhis*)
- VII. *Rasa* herbs (*Rasauśadhis*)
- VIII. Different group of drugs
- IX. Technical terms
- X. *Mahārasas*
- XI. *Uparasas* and *Sādhāraṇa rasas*
- XII. Nine gems
- XIII. Rejuvenation through nine gems
- XIV. Metals
- XV. Origin of mercury and its special processings
- XVI. *Jāraṇa* of mercury

There has been bi-fold variety of practices followed in the field of *rasaśāstra*. The one, purely alchemical such as transmutation of lower metals into higher metals, technically termed to be *lohavedha* and the other iatrochemical, preparation of therapeutic agents using alchemical drugs and procedures, termed to be *dehavedha*. Early texts of *rasaśāstra* have concentrated on the former and while *Rasendra Cūḍāmaṇi* was one which

emphasized both *lohavedha* and *dehavedha*. Thus it is a text of importance, witnessing the shift in the course of *rasaśāstra* towards application in medicine.

For translation of this text of *rasaśāstra*, originally written in Sanskrit, a definite method was adopted consistently. The breakup of chapters was retained as it is in the original text. In the translation of title of chapter, if direct translation was found to be lengthier, original Sanskrit word was retained and its meaning was conveyed at the beginning of chapter. Title was made brief, but conveying the same meaning that is meant in the original title and not necessarily the direct translation. Certain already popular terms like *doṣa*, *vāta*, *pitta*, *kapha*, *bhasma*, *rasauśadhis* etc. were retained in the translation; e.g. Chapter originally titled as *uparasa sadhāraṇa rasa nirūpaṇa* was titled as *uparasas* and *sadhāraṇa rasas*. At the beginning of the chapter an explanation like ‘*uparasas*’ are group of drugs in *rasaśāstra* which are second predominantly useful in the solidification of mercury’ was made. Looking into briefness of title, translation the word *nirūpaṇa* (description/statement) is omitted. In the measurements of proportions of drugs, equivalents was taken as per the *Ayurvedic Pharmacopeia of India*, published by dept. of AYUSH, India, e.g. 1 *pala* (48 g), 4 *kuḍava* (768 g) etc. Where ever certain processes which are not elaborately mentioned in the book, methodology of the process was taken from *Ayurvedic Formulary of India (AFI)*; e.g. *Kṣārajala* is not detailed in the text, but used in several contexts. If even in AFI, such processes or formulations were not found, details mentioned in other authoritative texts were quoted; e.g. *Cūrṇodaka* (Lime water) preparation, the method mentioned in *Rasa Tarāṅgiṇī* was referred. All the *Sanskrit* words used in the translation have been written with diacritical marks and have been italicized. Each verse was taken up preferably in a technically composite two line *śloka*. But if the meaning cannot be

satisfactorily drawn this way, the lines needed to elucidate the meaning were taken up together. To keep the technical parameters, each line in the text was given an identifying log number. For example, the first line of the first verse of the 4th chapter was numbered as 4.1.a. If it is very essential to maintain the integrity of the subject, 3rd line of *śloka* was also considered to be given with same verse no. with the addition of c. i.e. 4.1.c. Separate indices for drugs of plant, animal and mineral origin were prepared based on Sanskrit name for an easier search. Separate index for all non-herbal drugs on basis of scientific and English name was prepared.

Since mercury is the core drug in the *rasaśāstra*, the author has made elaborate description on its significance in the first chapter itself. Describing the properties of mercury on combination with other metals, it is quoted that on processing with gold, mercury will subside all the three *doṣas*; with silver, *piṭṭa* disorders; with copper, *kapha* and *piṭṭa* disorders; with iron, different kinds of abdominal pain; with lead, blood (*rakta*) disorders; with tin, diabetes mellitus and on processing with diamond, mercury will enhance the longevity of the individual. On processing with mica, mercury will lose its quivering. Later on the text claims that *rasouśadhis* are the most potent and reliable medicines with the capacity to act quickly in a smaller dose.

The important customary in ancient Indian education system, the initiation of the student has been dealt in second chapter. The author describes the qualities of ideal student and master for *rasaśāstra*. Notably, along with other ethical aspects of qualities of student, the author claims financial richness as criteria for one to become a *rasaśāstra* student. This may be due to the fact that it needs lots of investment for one to buy *rasaśāstra* drugs like mercury, different kinds of metals, and gems etc. which are relatively costlier. Mercury is imported from other countries now,

perhaps even in that period; hence the cost of the drug was possibly high even in that period. The book suggests teaching *rasaśāstra* to all the four castes (*varṇa*). *Rasaśāstra* should be taught to *Brāhmins* for upholding the righteousness, to king and businessman for profession, and to all others for the purpose of service.

The construction of pharmacy has been given a special importance in the text, dedicating a separate chapter on it. The chapter details the space division of pharmacy for various purposes of manufacturing process. Inside the herbo-mineral pharmacy (*Rasaśālā*), statue of Lord of *rasaśāstra*, *Rasa Bhairava* should be installed in the east; in the south west, processes involving the use of fire; in the south, processes involving the use of poisonous drugs; in the south east, processes involving the cutting etc.; in the northwest, drying; in the north, transmutation of metals and in the north east, collection and preservation of final products and raw materials. These specifications based on different directions must have been made with its possible connection with the exposure of sunrays, movement of wind and other environmental factors that could influence the standard manufacturing process of medicines.

Definitions of technical terminologies used in *rasaśāstra* have been described in detail in the fourth chapter. The chapter begins with incentives to the physician from the patient and drug dealer. These are called *dhanvantara bhāga* (Physician's part of medicines) and *rudra bhāga* (incentives from drug dealer). The practice of medicine was one of the most respectable professions and compassion was driving force. It was done with a mere intension of charity and was not to earn profit. The incentive in terms of medicine or money was collected from patient or the drug dealer in order to help the needy patients who cannot afford. Other technical terms like black sulphide of mercury (*kajjali*), different alloys like *varaloha* (alloy of wrought iron and copper),

varanāga (alloy of iron and lead) and *candrārka* (alloy of copper and silver) etc., plating out of gold and silver like *hemaraktī*, and *tāraraktī* etc. different tests for *bhasmas* like *apunarbhava* (irreversibility), *rekhāpūrṇa* (minuteness as to enter into grooves of fingers), *niruttha* (non-regainability into original state) etc. have also been dealt in this chapter. *Niruttha* test is done by melting prepared *bhasma* with silver to find out whether or not the weight of silver increase, in turn to confirm the completeness of preparation of *bhasma*. Use of copper plate (*tāmra patra*) mentioned in the text is one of rare findings while other texts only mention the use of silver in this test.

The pharmaceutical development in *rasasāstra* was possible with invention of various pharmaceutical technologies. They include the introduction of unique types of equipments, crucibles and heating devices like furnaces for various pharmaceutical processes. The fifth chapter deals completely on these aspects, with 30 types of equipments (*yantra*), 17 types of crucibles (*mūṣa*), 4 types of furnaces (*koṣṭi*) and 10 types of *puta* (quantum of heat). Sixth chapter deals certain set of herbs which are termed to be *divyauśadhis* with their characteristics, which are useful for digestion of mica in mercury and to enhance the amalgamation capacity of mercury. Seventh chapter enumerates 68 herbs which are useful for the processing of mercury and are termed to be *rasauśadhies* which is away from general implication of the word *rasouśadhis* meaning herbo-mineral preparations. Eighth chapter, deals with different group of herbal medicines like *sarpākṣyādi* group of drugs, *vyaghrikādi gaṇa*, *kadalyādi gaṇa*, *kākamacyādi gaṇa*, *vajra dandyādi varga* which are useful in preparation of crucibles, different *samskāras* of mercury and also purification and incineration of various mineral drugs. Drugs under these groups are yet to be clearly identified and many are not with the popular names found in other lexicons and treatises of Ayurveda.

Technical terms which deals with certain other groups of terminologies such as sour group (*amla varga*), salt group (*lavaṇa varga*) and alkali group (*kṣāra varga*), poison group (*viṣa varga*), sub-poisons group (*upaviṣa varga*) etc. have been dealt in ninth chapter. It is to be noted that technical terminologies have been dealt in two separate chapters where specific terms have been described in the first while specific group of drugs have been described in the second.

After mercury, the important primary group of drugs which are used for solidification of mercury are given a special prominence in *rasasāstra* and they are grouped as *mahārasas* and this group of (*abhraka*), ultramarine (*rājāvarta*), toumaline (*vaikrānta*), blue vitriol (*sasyaka*), iron pyrite (*vimala*), black bitumen (*śilājatu*), copper sulphate (*tuttha*), and copper pyrite (*tāpya*). Entire group of *mahārasas* have been dealt in 10th chapter. Inclusion of *rājāvarta* in *mahārasa* and consideration of *tuttha* and *sasyaka* as two different drugs are unique in this text, though both are considered synonymous contemporarily. Another important observation is that *rasaka* (Zinc oxide) has not been included in the eight *Mahārasas* enlisted in beginning of the chapter, but at the end of chapter the author explains about this drug in detail. However, though *tuttha* and *sasyaka* are separately enlisted in the beginning of chapter, separate explanations in terms of purification, extractions etc. are not found for them, only *sasyaka* is explained.

The secondary and ordinary groups of drugs which are used for solidification of mercury are grouped under *uparasas* and *sādhāraṇa rasas* respectively. The eleventh chapter, *uparasas* and *sādhāraṇa rasas* deal with these two set of eight drugs. *Uparasas* dealt are sulphur (*gandhaka*), red ochre (*gairika*), ferrous sulphate (*kāsisa*), orpiment (*haratāla*), realgar (*manahśila*), alum (*spatika*), collyrium (*sauvira*), and gamboge tree (*kaṅkuṣṭa*). Eight *sādhāraṇa rasa* dealt are *Mallotus philippinensis* (*kampillaka*), arsenic

trioxide (*gaurīpāśāṇa*), ammonium chloride (*navasādara*), calcium carbonate (*kapardika*), ambar (*vahnijāra*), red oxide of mercury (*girisindhūra*), cinnabar (*hiṅgula*) and litharge (*mṛddāra śṛṅga*).

Nine different gems have been elaborately described in twelfth chapter with the method of their purification, defects and therapeutic uses etc. The nine gems explained in the chapter are ruby (*māṇikya*), pearl (*muktā*), coral (*pravāla*), emerald (*tārksya*), topaz (*puṣparāga*), diamond (*vidhura/vajra*), sapphire (*nīla*), zircon (*gomedā*) and cat's eye (*vaidhūrya*). In the very next chapter, author has described various rejuvenation formulations prepared out of each gem along with other drugs termed as like *maṇikya rasāyana*, *mouktika rasāyana* and *pravāla rasāyana* etc. with their properties and actions.

Nine metals like gold, silver, copper, iron, lead, tin, brass, bronze, and bell metal are focused in the next chapter with their properties, adverse effects of their usage without purification, various incineration techniques (*bhasmīkaraṇa vidhi*) etc. The author claims that gold is a best enhancer of immunity and it prevents possible attack of diseases. Further specifying its immunization action, it is claimed that if a child upto ten years of age is given with gold without any restriction of food and regimen, he can be free from all diseases. The purification has been advocated to be mandatory for all metals and if unpurified metals are used the person will succumb to various diseases. Enlisting the adverse effects of intake of unpurified iron, it is mentioned that it causes mal-transformation of food, poor digestive power, distaste, abdominal lump, inflammation, purgation, lethargy, congestion in chest and constipation. *Yaśada* (zinc) was not mentioned in this text which was used in *rasasāstra* in later period of time. Mineral extraction from earthworms (*bhūnāga sattvapātana*) is described in this chapter and the extract is useful in melting of harder substances like diamond. Interesting

inclusion in this chapter is the method of extraction of oil from the seeds of *ānkola* [*Alangium salvifolium* (L.f.) Wangerin]. This oil of *ānkola* is claimed to be useful in both therapeutics and metallic purposes. It is useful in binding and incineration of mercury on the one side and on the other side, It kindles the digestive fire to peak, powders (digests) heavier substances, destroys eight types of abdominal lump, distaste, spleen related disorder, all the skin diseases including leucoderma quickly. It also cures anemia, fever, abdominal pain, haemorrhoids, oedema, breathing diseases and cough.

Fifteenth chapter deals with origin of mercury and its special processings. Since mercury carries away one from the all kinds of diseases, it is called as *pārada*, which is its Sanskrit name. It has been attributed with 12 blemishes namely, impurity (*mala*), toxin (*viṣa*), fire (*vahni*), intoxication (*mada*), arrogance (*darpa*), mud (*bhū*), stone (*śaila*), water (*jala*), copper (*tāmra*), iron (*ayas*), lead (*nāga*) and tin (*vaṅga*). Hence purification has to be done without fail. Prescribing unpurified mercury through medicinal products was considered to be sinful. The chapter covers different purification and incineration techniques of mercury along with potentization (*mukhīkaraṇa*) of mercury. Eighteen special processing of mercury has been elaborated, which sharpens its efficacy for therapeutic and alchemical purposes. The last chapter deals with digestion (*jāraṇa*) of different drugs like mica, sulphur, silver etc. in mercury. The purpose of digestion of other drugs in mercury is to enhance its iatro-chemical efficacy and make mercury most stabilized (*pakśaccheda* - wingless). The extract of mica is considered to be the best drug for stabilization of mercury. After *jāraṇa* of mercury with mica extract, other drugs are put for digestion in mercury in the order of copper, wrought iron, magnetite, silver, and gold.

“The book is considered to be one of the complete and authoritative books of *rasasāstra*,

devoted to alchemy and iatro – chemistry with its originality. Important is the description of process by means of which *varanāga* is prepared from a mixture of *nīlānjana* (stibnite) and *tikṣṇaloha* (iron). The verse shows that process by which antimony (*varanāga*) is obtained was known India much earlier than in Europe quotes *A History of Indian Medical Literature* by G. Jan Meulenbeld. The *Rasa Ratna Samuccaya*, which is considered to be most authoritative classic of *rasaśāstra* has taken matter from *Rasendra Cūḍāmaṇi* along with original *ślokas* in several contexts especially in first to eleventh chapter. The work is unique to give number of alchemically important drugs of vegetable origin under four different categories like *rasauṣadhi*, *mahauṣadhi*, *siddhauṣadhi* and *divyauṣadhi* which are particularly suitable for solidification (*bandha*) of mercury. The same has been taken in the latter important book *Rasa Prakāśa Sudhākara* as it is. In another context also *Rasendra Cūḍāmaṇi* has grouped many drugs under different categories like *sarpakṣyādi gaṇa* and *kadalyādi gaṇa* etc. based on their use in different *saṃskāras* of mercury. An extensive description on the unique alchemical process called *jāraṇa* (digestion of other drugs in mercury) is an important contribution of this work. The text does not include the minor gems (*upratnas*) and poisonous herbs (*viṣa*) and sub- poisonous (*upaviṣas*) with respect to their purification and therapeutic uses, which are found described in other texts of *rasaśāstra*.

CONCLUSION

English translation of entire text *Rasendra Cūḍāmaṇi* from first to sixteenth chapters with essential critical notes has been done in a systematic way. It is expected to help the learners and experts of alchemy and iatrochemistry in understanding its route in ancient Indian tradition,

which would be helpful in newer experiments. The text is one of the authoritative original texts on the field of *rasaśāstra*. It has described various pharmaceutical techniques to make mercury, metals and gems etc. ready to be used as a drug in preparation of herbo-mineral compounds (*rasauṣadhis*). The main focus of the text is purification and incineration of mineral drugs, ensuring the safety and efficacy of *rasauṣadhis*. The text does not focus on the herbo-mineral formulations as such, except the *bhasma* (calx) of mineral drugs. Preparation of various alloys using metals like copper, silver, lead, and tin etc. in various proportion and combination is one of interesting aspects of metallurgy in the text.

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