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## Concept and description of Rasaśāla in *Rasaratnasamuccaya*

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### Introduction

Rasaśāstra is the study of mercury along with number of metals and minerals and many plant and animal products. Mercury has an important role in extraction of mineral like gold and silver and also in the preparation of potent and effective medicines for human body. And it can also tell as: 'Lohavedha'- The technique of preparation of Gold with the help of Mercury was considered as a test and successful, then the mercury was to be used for 'Dehavedha' – rejuvenation of body for longevity of disease free life. Then, over time the use of metals increased and many treatises were produced like *Rasopanisad* by Somanātha (1000 AD), *Rasendracūḍāmaṇi* of Somadeva (1200 AD), *Rasārṇava* by Bhairvānanda Yogī (1200 AD), *Rasaprakāśasudhākara* by Yaśodhara (1400 AD), *Rasaratnasamuccaya* by Vāgbhaṭa (1400 AD), *Rasakaumudī* by Gnanachandra (1500 AD), *Rasasanketalika* by Chamunda Kayastha (1600 AD), *Rasakāmadhenu* by Sri Chudamani (1700 AD), *Rasacandrāmśu* by Dattaram Vaidya (1700 AD) etc.<sup>[1]</sup>

*Rasaratnasamuccaya* is one of the most important metallurgical treatise written by Vāgbhaṭa in 13<sup>th</sup> century AD. The name of the book itself suggests that it is a compilation of Gems and valuable principles of Rasa (mercury). Compared to original treatises in this field, the subject matter is extremely scattered and disintegrated, and this treatise proves to be a compilation and comprehensive, one of the best work of Rasaśāstra. P. C. Ray, in 'History of Hindu Chemistry' he wrote *Rasaratnasamuccaya* is a systematic and comprehensive treatise on materia medica, pharmacy and medicine. Its methodological and scientific arrangement of the subject matter would do credit to any modern work and altogether it should be pronounced a production of unique of its kind in Sanskrit literature<sup>[2]</sup>.

### Location of Rasaśāla

In the 6<sup>th</sup> chapter, *Rasaratnasamuccaya* describes the location of Rasaśāla.

*Ātañkarahite deśe dharmarājye manorame |*

*Umāmahesvaropete samṛddhe nagare śubhe || 11*

*Kartavyam sādhanam tatra rasarājasya dhīmatā |*

*Atyantopavane ramye caturdvāropaśobhite || 12*

*Tatra śālā prakartavyā suvistīrṇa manoramā |*

*Samyagvātāyanopetā divyairvicitrā || 13<sup>[3]</sup>*

The place of Rasaśāla should be free from all kinds of fear, situated in the kingdom where the ruling is done with virtue, righteous and mind blowing. It should be in a good city which flourished and Lord Siva and Pārvati dwelling together. A wise person should arrange there to perform mercurial process where the place is surrounded by beautiful gardens and which has four entrances. In the centre of the park, the pharmacy building is constructed with enough space and elegant. And with many windows and should decorated with excellent pictures.

*Tatsamīpe same dīpte kartavyam rasamaṇḍapam |*

*Atiguptam suvistīrṇam kapadargalaśobhitam || 14*

*Dhvajachatravitānādhyam puṣpamālāvalambitam |*

*Bherikāhalaghaṇḍaśīrṅginadavinaditam || 15*

*Bhūh samā tatra kartavyā sudṛḍha darpaṇopamā |*

*Tanmadhye vedikā ramyā kartavyā lakṣaṇānvitā || 16<sup>[4]</sup>*

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<sup>1</sup> Bal Ram Singh, Girish Nath Jha, Umesh Kumar Singh, Diwakar Mishra (Ed.), *Science and technology in Ancient Indian Texts*, D. K. Printworld Ltd, New Delhi, 2012, p. 142.

<sup>2</sup> Ashok D Satpute, *Vagbhata's Rasaratnasamuccaya*, Chetan Prakashan, Mysore, 1990, p. prologue.

<sup>3</sup> V. A. Dole, *Rasaratnasamuccaya*, Chowkhamba Krishnadas Academy, Varanasi, 2011, p.244.

<sup>4</sup> Ibid, p. 245.

There should be a rasamaṇḍapa constructed near the pharmacy wit enough light arrangement. There should be very secret and concealed with massive number of cupboards. It should be decorated with flags, umbrellas, arches and flower garlands. There should be sounds of drums, bells, pipes and various horns etc. The floor of maṇḍapa should be plain, firm and shine like a mirror. And, a beautiful altar is to be prepared as per good omens. The seventh chapter is completely deals with Rasaśālā (pharmacy)

### Location

*Rasaśālām prakurvītā sarvabādhāvivarjite /  
Sarvausadhimaye deśe ramye kūpasamanvite ||1  
Yakṣyatrakṣyasahasrakṣadigvibhage suśobhane /  
Nanopakarāṇopetam prakāreṇa suśobhitam ||2<sup>[5]</sup>*

Pharmacy should be built over a place which is totally free from troubles, where all the medicinal herbs are available, beautiful and has a well with plenty of water nearby. The pharmacy is built at either North (yakṣa), North East (tryakṣa) or East (sahasrākṣa) of the site and which contains various equipments and which is surrounded by a compound wall.

### Arrangement of Rasaśālā

*Śālāyāh pūrvadigbhāge sthāpayedrasabhairavam /  
Vahnikarmāṇi cagneve yāmye pāṣāṇakarma ca || 3  
Naitṛtye śāstrakarmāṇi vāruṇe kṣālanādīkam /  
Śoṣaṇam vāyukṇe ca vedhakarmottare tathā || 4  
Sthāpanam siddhavastūnām prakuryadīśakoṇake /  
Padārthasaṅgrahah kāryo rasasādhanahetukah || 5<sup>[6]</sup>*

The Rasabhairava should be placed at the Eastern side of the pharmacy. All the procedures requiring fire and instruments relating to firework are should be assembled at the South East direction of the pharmacy. South East direction is the location of Lord Agni (fire) and hence the procedures dealing with heat are to be carried out in this direction. All the grinding process should performed at the Southern block. Process using sharp metals are to be carried the South - West region. Facility for washing, cleaning etc. are takes place in the Western region and North– West direction is for drying. Vedhakarma or paradhakarma (converting lower metals into gold) is done at the north/south region of the he pharmacy. The north-eastern blocks are to be used for storing of raw materials and products

### Equipments required for Rasaśālā

The Rasaśālā should be well equipped by different kinds of required equipments.

*Satvapātanaakoṣṭhīmca surakoṣṭhīm susobhanam /  
Bhumikoṣṭhīm calatkoṣṭhīm jaladroṇyopyanekaśah || 6  
Bhastrikayugalam tadvannalike vamsālohayoh /  
Svarṇāyoghoṣasūlbasmakuṇḍyascarmkṛtām tathā || 7  
Karaṇāni vicitrāni dravyānyapi samāharet | 8  
Kaṇḍāni peśani khalvādrōnirupāśca vartulāh |  
Ayāsastāptakhalvāśca mardakāśca tathāvidhah ||9  
Sūkṣmachidrasāhasraḍḍhā dravyagālanahetave |  
Cālani ca kaṭatrāni śālākā ca hi kuṇḍāli || 10  
Mūsāmṛttusakārpāsavanopalakapiṣṭakam |  
Trividham bheṣajam dhātujivamūlamayam tathā || 11  
Śikhi govaram caiva śarkarāca sitopalā |  
Kācayomḍdvarātānām kūpika caṣakāni ca || 12  
Śūrpādivēṇupātāni jnūdrājniprāśca śankhika |  
Kṣuraprāśca tathā pakyo yaccānyattatra yujyate ||13  
Pālika karṇikā caiva śākcchedanaśastrakāh ||<sup>[7]</sup>*

### 1. Koṣṭhi

Firstly, various types of Koṣṭhis (stoves or furnace) required in a pharmacy. They are:  
Satvapātana Koṣṭhi - Furnace look like bucket.  
Surā Koṣṭhi – Furnace for extracting the essence of minerals and for distillation.  
Bhūmi koṣṭhi – Stationary furnace  
Calatkoṣṭhi – Mobile furnace

### 2. Jaladroṇi

These are water storage containers of different sizes.

### 3. Bhastrika

These instruments are two bellows with bamboo and metallic pipes.

### 4. Kuṇḍa

Kuṇḍa are the vessels made up of gold, bronze, copper, stone, leather and other useful materials for collecting and storing of materials and drugs in the pharmacy.

### 5. Kaṇḍani

Kaṇḍani is the small pounder for crush things.

### 6. Peśani

Peśani is a type of grinder made by stone.

### 7. Droṇi

It is a big sized caldron.

### 8. Taptakhalva and Madraka

They are two kinds of mortars and pestles which can be heated on fire.

### 9. Cālani

Cālani is a sieve consisting many of tiny holes for filtering liquid.

### 10. Kaṭatrāni

Kaṭatrāni is a kind of scissors made up of stone and metal for cutting metal sheets and leather.

### 11. Salākā – knife

### 12. Kuṇḍāli – kuṇḍālis are the circular discs too keep vessels.

### 13. Mūsā – Crucible

### 14. Mṛttika – Mud used for the preparation of crucible.

### 15. Tuṣā – paddy husk

### 16. Kārpāsa – Cotton

### 17. Vanopala – Cow dung cakes

### 18. Piṣṭaka – Flour

### 19. Trividham bheṣajam: Dhātujam (dhātumayam), Jīvajam and Mūlamayam – Three kinds of drugs viz. mineral, animal and herbal products respectively.

### 20. Śikhitra / śikhi – Charcoal

### 21. Govaram – Dried cow dung powder

### 22. Śarkarā – Sugar / jiggery

<sup>5</sup> Ibid, p.261.

<sup>6</sup> Idem.

<sup>7</sup> Ibid, 263.

23. Sitopala – Candy sugar
24. Kūpikā and Caṣaka of Kācavarāṭa and mṛdvarāṭa – Bottle and swamp made up of glass and mud.
25. Śūrpa – Winnowing basket made up of bamboo
26. Kṣudrakṣipra – Small pearl shells.
27. Kṣurapra – Sickle
28. Pālika – Sharp edged blade.
29. Karṇika / saṅkhika – Earring shaped instruments in small size for cutting and scraping.
30. Śākachedanaśastraka – Knives to cut the herbs and vegetables.

*Rasaratnasamuccaya* mentions the synonyms of some equipments. They are: Śikhitra or charcoal is also called pavakocchiṣṭa, aṅgāra and kokila. Piṣṭakam, chagaṇam, chaṇa, upala, utpala, giriṇḍa and upalasāṭhī are synonyms of or samśuṣkachagaṇa (dry cow dung cake). Kupikā, siddhā, golā and giriṇḍikā are synonyms of kūpikā or bottle whereas synonyms of tumbler are caṣaka, kaṭori, vaṭika, khārikā, kancolī and grahikā.

*Śikhitra pavakocchista aṅgāra kokila matāh || 18*  
*Piṣṭakam chagaṇam chaṇamupalañcotpalam tathā |*  
*Giriṇḍopalasāṭhī ca samsuskachaganaabhidhah || 19*  
*Kūpikā kupikā siddhā golā caiva giriṇḍikā || 20*  
*Caṣakam ca kaṭorī ca vaṭikā khārikā tathā |*  
*Kaṅcoli grāhikā ceti nāmānyekārthakāni hi || 21 <sup>[8]</sup>*

### Conclusion

From the Vedic period, the development of technical subjects can be seen. Among the technical subjects, Ayurveda and Rasaśāstra flourished between 600 BC and 800 AD. After 800 AD, several authentic books were produced in the field of metallurgy like *Rasopaniṣad*, *Rasendracūdāmāṇi*, *Rasārṇava*, *Rasaratnasamuccaya* etc. *Rasaratnasamuccaya* is an important treatise in this realm, and it contains an elaborated details of Rasaśāla or pharmacy in different chapters. Vāgbhaṭa gave a clear view of rasasala like location, arrangements, equipments used etc. in a systematic manner.

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<sup>8</sup>Vagbhata's Rasaratnasamuccaya, p. 69.