

**A REVIEW ON THE ARTIFICIALLY PREPARED RASA DRAVYA IN INDIAN
ALCHEMY**

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ABSTRACT

Ayurveda pharmaceuticals deals with various dravya (drugs or raw materials) of varied origin like minerals, metals, marine drugs, gem stones, etc. The minerals that are explained in the treatises of Ayurveda pharmaceuticals are naturally occurring ores, but at present one also get many artificially prepared compounds like blue vitriol, green vitriol, alum, litharge, etc. These artificially prepared drugs are also in use in formulations, but only after subjecting to proper shodhana (purification), marana (incineration) processes as mentioned in the texts of Indian alchemy. Research works on the therapeutic efficacy of artificial prepared drugs in comparison with the naturally occurring mineral have not been carried out; thus this area opens scope for exploration.

KEYWORDS: Alchemy, Ayurveda pharmaceuticals, mineral, artificial.

INTRODUCTION

Rasashastra and Bhaishajya Kalpana deal with Ayurveda pharmaceuticals, and Rasashastra mainly deals with Indian alchemy. The rasa dravya used are of different array namely mineral, metal, marine drugs and precious

stones. Various mineral drugs are used in pharmaceuticals and the ones mentioned in the treatise of rasashastra are naturally occurring rasa dravya. But at present, some of these that are in use are artificial prepared ones.

Table 1: List of Rasa dravya prepared artificially and their method of preparation.

Sl. No.	Name of the Rasa dravya	English Name	Chemical name	Method of preparation
1	Tuttha	Blue vitriol	$CuSO_4 \cdot 5H_2O$	Purified copper is made into powder and kept in a glass vessel. Sulphuric acid (H_2SO_4) is added to it drop by drop and gently stirred. When copper is completely dissolved, the solution is kept on mild heat for drying. It is then kept in a mortar, ground adding hot water till it is completely dissolved in water and then shifted to wide vessel. It is left for cooling down when crystals of Tuttha (copper sulphate) are formed. This can be used for all purposes without fear. ^[1]
2	Kaseesa	Green vitriol	$FeSO_4 \cdot 7H_2O$	1. Iron is made into powder, kept in a glass vessel and it is added with dilute sulphuric acid-drop by drop, till iron gets dissolved in acid. This solution is filtered through

				<p>filter paper and the liquid part is added with equal quantity of alcohol and kept for drying. Crystals are formed on the liquid which are taken out and dried. The sediment is also taken after complete evaporation of the liquid portion.^[2]</p> <p>2. Green Vitriol is also manufactured from the mineral source namely FeS_2.^[3]</p>
3	Mriddarashringa	Litharge	PbO	<p>The third variety i.e., artificial one, can be prepared by two methods.</p> <p>1. Lead is heated intensely and the yellowish creamy layer which floats on the surface, is gathered. It is collected separately and again heated.</p> <p>2. Lead and lead nitrate or lead and potassium nitrate are heated together, which forms this variety.^[4]</p>
4	Kankshi	Alum	$\text{K}_2\text{SO}_4, \text{Al}_2(\text{SO}_4)_3 \cdot 24\text{H}_2\text{O}$	<p>1. Potassium sulphate and Aluminium sulphate are mixed in equal molecular weight, dissolved in water and the watery portion is evaporated to obtain crystals of Alum.</p> <p>2. Bauxite is dissolved in concentrated H_2SO_4 and added with Potassium sulphate. Later it is dried to get Alum.</p> <p>3. Alunite $\text{K Al}(\text{SO}_4)_2(\text{OH})$, is calcined and dissolved in water, filtered and the liquid portion is dried to get the crystals of Alum.^[5]</p>
5	Manahshila	Realgar	As_2S_2	<p>49 parts of purified white arsenic and 16 parts of pure sulphur are ground together and kept in damaru yantra. This set is kept on a hearth and heated. On cooling down, the set is opened and Manahshila which gets deposited as a sublimate on the upper pot of the yantra is collected and preserved.^[6]</p>
6	Hingula	Cinnbar	HgS	<p>1. This contains about 85% of mercury. Presently, only artificial cinnabar which is prepared in a special apparatus called Mridanga yantra. Mercury and sulphur</p>

				are ground together thoroughly in the ratio of 6: 1 and put in the Mridanga yantra heated and the grey powder is taken out kept in Urdhva pātana yantra and heated to get Hingula (cinnabar). 2. The cinnabar prepared in Surat (Gujarat state) is considered best which is available in big masses and called as bundle of needles sūdula kaṭṭa- as it appears with lustrous striations. The Southern Indian practitioners prefer this variety. They also call this Valanda lingam or Valanda ingilikam. ^[7]
7	Navasadara	Ammonium chloride	NH ₄ Cl	Navasadara which is synonymously termed as Chullika Lavana is obtained by burning wood of Kareera (Capparis aphylla) and Peelu (Salvadora persica) ^[8] Presently, sal- ammoniac is an artificial product manufactured. ^[9]
8	Mukta	Pearl	CaCO ₃	In artificial process, small granules of some substance is put inside the Mukta sukta which contains a Krmi and after closing, it is put under the sea water to allow the layers of the secretions to adhere on the granule to form a good pearl in due course. ^[10]

DISCUSSION

A review through the texts of rasashastra have thrown light on various rasa dravya that are naturally occurring as well as prepared artificially. Some of these are also said as a variety of the original drug. Owing to the similar properties, they possess and being the same chemically they are adopted into the science of Indian alchemy.

Mriddarashringa is a mineral and in the Ayurvedic texts three varieties of Mriddarashringa are mentioned. Varieties of Litharge viz. yellow, yellowish white and artificial, i.e., Pita, Pitapandura and trima, respectively. Three methods of artificial preparation of litharge are explained and any variety amongst the three are said to be used for medicinal purpose.^[11]

Alum is another dravya and now- a- days artificially prepared alum is used for medicinal purpose. Alum is found in shales (Alum shales) which contain pyrites. The variety to be taken for medicinal purposes should be

slightly yellowish in colour, heavy in weight and smooth in touch.

In artificial preparation of pearl, by the process adopted a good variety of pearl can be formed in a comparatively short period; and there is not much difference in cultured and natural Mukta as both are formed in the same conditions with the same materials.

Different types of preparation are also mentioned for kaseesa, hingula, mridrashringa, etc. but ultimately the chemical composition remains the same.

CONCLUSION

Indian alchemy is an integral part of Ayurveda pharmaceuticals where drugs of varied origin are utilized in therapeutics. The sources of these were natural ores earlier. Owing to difficulty in procurement and lack of genuine drugs of these; and methods of preparation easier in laboratories have probably led to the preparation of many of these dravyas artificially; and steadily these are into practice. But irrespective of the

source of the drug, these are subjected to the processes of shodhana, marana, etc. and then used to formulate a preparation. Research on these areas is an open arena to draw any conclusion pertaining to its therapeutic efficacy.

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