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Pharmaceutical Preparation of Agnikumāra Rasa; A Herbo-mineral Preparation

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Abstract— *Agnikumāra rasa is a herbo-mineral preparation indicated for disorders such as Udara, Yakrt vikaras, Gulma, Agnimandya etc. The reference for the same was obtained from the classical text Rasa Ratna Samucchaya. Preparation of this formulation requires special precaution as it contains rasa drugs and upavisha. Usage of such drugs without proper shodhana may cause adverse drug reactions. To ensure the efficacy along with safety of Rasaushadhis, care must be taken throughout the whole procedure. Now a days, Standard Operative Procedure (SOPs) are not followed properly while making medicines and hence may result in negative effects. By following Standard Operative Procedure genuine medicines can be prepared. Here, an effort is placed to validate the process of shodhana of rasa drugs and upavisha of the formulation Agnikumāra rasa and thus to develop a standard operative procedure of the preparation of the same.*

Keywords— *Agnikumāra rasa; Rasa Ratna Samucchaya; Shodhana; Upavisha.*

I. INTRODUCTION

Ayurveda, the science of longevity gives greater importance in prevention of disease rather than cure, by maintaining positive health through holistic approach. Ayurveda medicines are derived from plant, animal and mineral resources that make up the biodiversity of the earth. Subsequently a branch dealing with use of medicines predominantly of metal/mineral origin, emerged by the name "*Rasasastra*". Many of the drugs employed for *Rasayana Chikitsa* contain *Rasa* and are classified as *Rasaushadhies*. The benefits of *Rasaushadhies* are; they are quicker in action, needs only in smaller doses. As the dose is less, there is no issue of palatability arises.

Agnikumāra rasa is a herbo mineral formulation mentioned in classical text *Rasa Ratna Samucchaya* containing 9 drugs which are easily available such as *Parada, Gandhaka, Jayapala, Triphala* and *Trikatu.* This formulation can be used in many conditions such as ascites, hepatic failure, anemia, fever, indigestion etc. The main aim of this study is to develop a standard operative procedure for the preparation of *Agnikumāra rasa.*

II. MATERIALS AND METHODS

Agnikumāra rasa is a herbo-mineral preparation mentioned in the classical text Rasa ratna samucchaya, Gulmadhikara[1]. It contains 9 ingredients which are easily available.

Table No.1 Ingredients

Drugs	Scientific name	Quantity
1. Parada	Hydrargyrum	1 part
2. Gandhaka	Sulphur	1 part
3. Jayapala	Croton tiglium	1 part
4. Amalaki	Emblica officinalis	1 part
5. Haritaki	Terminalia chebula	1 part
6. Vibhitaki	Terminalia bellirica	1 part
7. Pippali	Piper longum	1 part
8. Maricha	Piper nigrum	1 part
9. Nagara	Zingiber officinale	1 part

Bhavana dravya : Gomutra
Type of formulation : Gulika
Dose : Badara pramana
Anupana : Luke warm water
Mode of administration : Oral
Indication : Udara, Yakrt vikaras, Gulma, Agnimandya etc

The required raw drugs were collected from a GMP certified raw material store with proper guidelines for their identification from Department of Dravyagunavjnana, Government Ayurveda College, Tripunithura. The pharmaceutical preparation was done at the *Rasasala* of Department of Rasasastra and Bhaishajyakalpana, Government Ayurveda College, Tripunithura.

PHARMACEUTICAL PROCESSING OF *AGNIKUMĀRA RASA*

Agnikumāra rasa is mentioned in *Rasa Ratna Samucchaya, Gulmadhikara*. Preparation of *Agnikumāra rasa* involves the following steps.

1. *Shodhana of Hingula*
2. Preparation of *Hingulotha parada*
3. *Shodhana of Gandhaka*
4. Preparation of *Kajjali*
5. *Shodhana of Jayapala*
6. Preparation of *Gulikas*

Shodhana of Hingula[2]

250g of *ashodhita hingula* was taken and powdered in a clean porcelain *khalva yantra*. Sufficient quantity of *ardraka swarasa* was poured into the *khalva yantra*, so that the powdered *hingula* gets completely immersed in the juice. Then trituration was started. *Bhavana* was done until the *hingula* powder gets dry up. This process was repeated for six

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more times. On drying, the *hingula* was scrapped out of the *khalwa yantra*. 256 g of *shodhita hingula* was obtained.

Preparation of Hingulotha parada[3]

2 pots of similar size were taken. It was then coated with *tamboola swarasa* in the inside part. 255 g of powdered *shodhita hingula* was put into a pot. Second pot was placed over the *hingula* containing pot in an upside down manner. The joined area was covered with seven layers of multani mitti smeared cloth. This was kept overnight for drying up. Next day the apparatus was kept over stove with medium flame for three hours and high flame for next three hours. Cold, wet cloth was constantly placed over the upper pot. Next day, the seal was broken and *parada* was collected from the upper pot. 100g of *hingulotha parada* was obtained.

Shodhana of Gandhaka[4]

100g of *ashodhita gandhaka* was taken in a *darvi* along with equal parts of *ghrta*. It was melted and was poured into a vessel containg milk through a clean cloth. Then it was washed with hot water and allowed to dry. The procedure was repeated for six more times. Then the *Gandhaka* was washed with hot water. At last *shodhita gandhaka* was dried and weighed. 80 g of *shodhita gandhaka* was obtained.

Preparation of Kajjali[5]

60 g each of *parada* and *gandhaka* were taken and was grinded in a *khalva yantra* until *nishchandratwa* of *Kajjali* was obtained. 102 g of *Kajjali* was obtained.

Shodhana of Jayapala[6]

250gm of *ashodhita jayapala* seeds were tied into a *potali* and was subjected to *dholayantra swedana* with milk as medium for three hours. Milk was poured as its quantity decreases. After *swedana, potali* was taken out and seeds were washed with hot water. Then testa of the seeds were removed and was split into two since *Jayapala* seeds are dicotyledons. It was then dried under sunlight and was powdered. 200 g of *Shodhita Jayapala* was obtained.

Preparation of Gulikas

Equal quantities of *Parada, Gandhaka, Jayapala, Triphala* and *Trikatu* should be mixed with 16 parts of *Gomutra.* So, 12g each of *Parada, Gandhaka, Jayapala, Triphala* and *Trikatu* were mixed with 192 ml of *Gomutra* and was triturated in a *khalva yantra* until *gulika* consistency was obtained. Pills were rolled out of it and dried under sunlight.

III. RESULTS

92 *gulikas* were obtained after the pharmaceutical preparation

Organoleptic characters of the gulika

- Colour – greyish black
- Odour – smell of *gomutra*
- Touch – hard to touch
- Taste – slight pungent

Fig. 1. Hingula shodhana

Fig. 2. Hingulotha parada nirmana

Fig. 3. Gandhaka shodhana

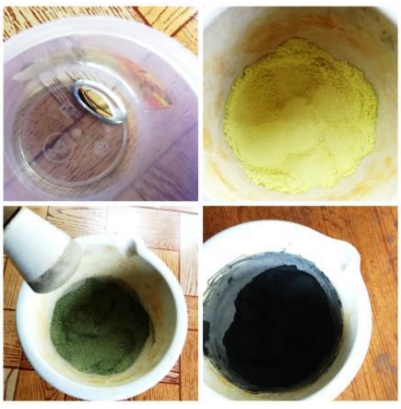

Fig. 4. Kajjali nirmana

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Fig. 5. Jayapala shodhana

Fig. 6. Gulika preparation

IV. DISCUSSION

Pharmaceutical processing is one of the important parts of the study. It starts right from the collection of raw drugs from authentic sources to the packing of the finished products. Acharyas consider *Aushadha* or *Bheshaja* as one among the *Chatushpada* and enumerates four *gunas* for the perfect one such as *bahukalpam, bahugunam, sampannam* and *yogyam*. To attain such qualities to *bheshaja*, raw drugs play the prime role. So attaining genuine raw drugs is the foremost step. The required raw drugs were collected from a GMP certified raw material store.

Jayapala is an important medicinal plant which is classified under *Upavisha*. It is used for the treatment of constipation, dyspepsia, gastrointestinal disorders, intestinal inflammation etc. *Jayapala* seeds oil is reported to contain Phorbol esters and Crotonic acid along with fatty acids. It is well known for its purgative action. Since it is a *visha* drug, purification of this drug was a must. In *Ayurveda, Sodhana* is a unique process of detoxification which is employed partly to purify/detoxify and partly to potentiate the effect of various kinds of drugs with a view to reduce their toxic contents/effects as well as to enhance their therapeutic properties. *Godugdha* is considered as one of the best *sodhaniya dravya*. In classical texts it is mentioned that *Jayapala* is used for therapeutic purposes after doing *sodhana* in *godugdha*. Milk is a natural emulsion, having both oil and water phase and has the capacity to dissolve the nonpolar, as well as polar constituents. Phorbol ester and crotonic acid are nonpolar constituents of *Jayapala* seeds. During the process of *sodhana*, milk removes these two constituents from the seeds. Both the constituents are reported to have irritant activity on the gastrointestinal tract and subsequently responsible for severe purgative action. It may be speculated that reduction in the toxicity of *jayapala* seeds is due to the reduction in the level of these two constituents along with the other constituents[7].

Parada was extracted from *Hingula* by *Urdhwapatana* method, because Acharya says that *hingulotha parada* is devoid of *parada* dosas and doesn't require any further purification. Prior to that, *hingula* was purified by doing *bhavana* in *ardraka swarsa*. The media was selected because previous studies show that maximum yield of *parada* happens from the *hingula* that is done purification in *ardraka swarasa*.

Gandaka was also purified in *godugdha* as per the classical texts. In the procedure, the *gandhaka* gets melted in the *goghrta* during which the *vishas* get dissolved in *ghrta*, thereby *ghrta* simultaneously detoxifies the *gandhaka*. *Goghrta* pacifies *pitta dosha*. The substances which are insoluble in ghee are filtered off from the *gandhaka*. The *vishas* present in *gandhaka* are lipid soluble and have affinity towards protein present in *dugdha*. When transferred into *dugdha*, the temperature of the *gandhaka* drops down and its gets solidifies agin into a solid slab and the traces of *ghrta* float on the surface of the *dugdha*. After *swanga sheeta*, the *snigdhata* of *gandhaka* because of *ghrta* was washed out with hot water[8].

Then *kajjali* was prepared by continuous trituration of equal amount of *parada* and *gandaka* for about 76 hours.

All the ingredients were powdered and triturated in 16 parts of *gomutra*. It took almost 6 hours until pill rolling consistency was attained. *Bhavana* with liquids, whether of herbal, animal or mineral origin, helps to bring minute particles of material in contact with each other as well as with liquid media. During wet grinding process, mixture gets properly mixed and material becomes soft, smooth and sticky, which facilitates better binding of material especially in *Kharaliya rasayana* and pills can be made easily out of it, thus facilitating further processing. Media impregnates its active principles to the material and converts the inorganic material to organo-metallic or organo-mineral form which is suitable for body. Probable frequent alterations in particle size during *bhavana* and size reduction at the end may increase absorption and improve bioavailability of the drug. *Bhavana* can add some new properties to material and sometimes it enhances the original properties of drug to be levigated. Induction of organic trace elements from liquid in to *Bhavita Dravya* may also help fulfilling trace element requirement of body and takes part in many physiological processes.[9]

Finally, pills of *Badara pramana* were rolled out.

V. CONCLUSION

The main aim of Ayurveda is to improve health through the use of effective rejuvenators as well as through proper diet. For this purpose Ayurveda has chosen all possible materials from three natural resources of- herbal, metal/mineral and

animal origin. Subsequently a branch dealing with use of medicines predominantly of metal/mineral origin, emerged by the name "*Rasasastra". Rasasastra* mainly deals with usage of metals, minerals, *visha*, *upavishas* etc, which require proper purification process prior to the usage. The purpose of standardizing the formulations is to ensure its therapeutic efficacy and safety. *Agnikumāra rasa* is a herbo-mineral preparation mentioned in *Rasa Ratna Samucchaya* in *Gulmadhikara*. The current study is a humble effort to standardize the pharmaceutical preparation of the same.

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