



Research Article

PHARMACEUTICAL STANDARDIZATION OF VATARI GUGGULU

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ABSTRACT

Rasa Shastra is the pharmaceutical branch of Ayurveda. As like any other medical system, success of Ayurvedic treatment also depends upon quality of medicine prescribed to the patient. The integral part of *Rasa Shastra* lies in the successful pharmaceutical process. *Rasaoushadis* are the potent Ayurvedic preparations mainly containing metals and minerals. These *Oushadis* possess wide range of therapeutic efficacy and are considered superior because of their qualities like small dose, quick action, palatability and longer shelf life. *Vatari Guggulu* is an important *Rasa oushadi* described in *Bhaishajya Ratnavali - Amavata Adhikarana* indicated in *Gridhrasi*. *Vatari Guggulu* contains *Suddha Gandhaka* (Sulphur), *Suddha Guggulu* (*Commiphora mukul*), *Haritaki* (*Terminalia chebula* Retz), *Vibhitaki* (*Terminalia bellirica* Roxb), *Amlaki* (*Emblica officinalis* Gaertn), *Eranda taila* (*Ricinus communis* Linn). The pharmaceutical procedures adopted in this study are *Shodhana*, *Churna Nirmana* and preparation of *Vatari Guggulu*. The specific pharmaceutical blend of these contents can result in a more effective formulation. Till now, no research work has been carried out to standardize this formulation. Therefore the present study has been planned to standardize the method of preparation of *Vatari Guggulu* according to the method explained in the classical literature.

KEYWORDS: *Vatari Guggulu*, *Shodhana*, *Churna nirmana*, Standardization.

INTRODUCTION

The nature possesses immensely valuable and powerful medicines in the form of metals, minerals and plants. However, most of the drugs as such are not absorbable into the biological system, until and unless they undergo certain modifications. Some specialized techniques are adopted to make these drugs absorbable and therapeutically viable. The drug manufacturing processes of Ayurveda are included in discipline of *Rasa Shastra* and *Bhaishajya Kalpana*. Mineral materials as such are claimed to be toxic by Ayurvedic *Rasa* texts. By adopting specialized pharmaceutical procedures like *Shodhana*, *Marana*, *Jarana*, *Murcchana* etc. they are converted into nontoxic, safe and potent therapeutic forms.

Vatari Guggulu is one of the herbo-mineral formulation mentioned in *Bhaishajya Ratnavali*,^[1] which contains equal parts of *Suddha Gandhaka* (Sulphur), *Suddha Guggulu* (*Commiphora mukul*), *Haritaki* (*Terminalia chebula* Retz), *Vibhitaki* (*Terminalia bellirica* Roxb), *Amlaki* (*Emblica officinalis* Gaertn), *Eranda taila* (*Ricinus communis* Linn). *Shodhana*, *Churna nirmana* and preparation of *Vati* of *Vatari Guggulu* are the main pharmaceutical procedures adopted in the preparation of *Vatari*

Guggulu. Standardization of Ayurvedic drugs at various levels starting from the selection and collection of raw material to the final product is essential to produce a safe and efficacious drug. Therefore in the present study an effort has been made to highlight the significance of these pharmaceutical procedures and to standardize the method of preparation of *Vatari Guggulu*.

AIMS AND OBJECTIVES

Pharmaceutical standardization of various steps involved in the preparation of *Vatari*.

MATERIALS AND METHODS

Chief reference: Govindas, *Bhaishajya Ratnavali* vol-2, Choukambha, Varanasi, 2017 edition, 625p; 29th chapter *Amavata Adhikarana* - Sloka No. 152-155.

Entire preparation of *Vatari Guggulu* was carried out in Department of *Rasa Shastra* and *Bhaishajya Kalpana*, TTD's S.V. Ayurvedic College, Tirupati, Andhra Pradesh.

The entire pharmaceutical study was carried out in four stages

Stage I

- *Shodhana* of *Gandhaka*

- *Shodhana* of *Guggulu*

Stage II

- *Triphala churna Nirmana*

Stage III

- To make homogenous mixture
- S.Q. of *Eranda taila* mixing

Stage IV

- Preparation of *Vatari Guggulu*

Vatari Guggulu Preparation**Materials**

Shudda Gandhaka - 100g

Shudda Guggulu - 100g

Triphala Churnam - 300g

Eranda Taila - Q.S

Method/ Principle: *Shodhana, Churna Nirmana, Mardana.*

Apparatus: *Khalwayantra, Gas stove, Iron ladle, Steel vessel, Cloth, Spoon, steel vessel, tray, steel cutter.*

Procedure

The pharmaceutical processes adopted for the preparation of *Vatari Guggulu* were *Shodana, Churna Nirmana, Mardana, Vati nirmana. Gandhaka shodhana* was done by *Putra* method. *Gandhaka* was spread over cotton cloth which was placed over a broad mouthed ghee smeared earthen pot and opening was sealed with an earthen lid. Over the lid 12 cow dung cakes were and ignited. *Gandhaka* melted at its melting point of 115.6°C and dropped into milk through cloth. Obtained *Gandhaka* was cleaned with hot water to obtain *Shodhita Gandhaka*. *Guggulu shodana* was done by *Swedana* method. Physical impurities are removed in *Guggulu*, pounded in stony *Khalva yantra* in order to make into *Pottali* form and to make it into *Shodana* with cow's milk in

RESULTS**Table 1: Showing the change in weight of various practices in the preparation of *Vatari Guggulu***

Name of the practical	Initial weight (g)	Final weight (g)	Gain/Loss in weight (g)
<i>Gandhaka Shodhana</i>	500g	444g	Loss 56g
<i>Guggulu Shodhana</i>	500g	380g	Loss 120g
<i>Triphala churna</i>	300g	280g	Loss 20g

Table 2: Showing the result of mixing of component drugs of *Vatari Guggulu*

Initial Weight	Final Weight	Loss in Weight	Loss in percentage
500g	520g	0g	0%

Table 3: Showing the result of Preparation of *Vati* of *Vatari Guggulu*

Weight of <i>Vatari Guggulu</i>	No. of Total <i>Vati</i> (Each 1g)	Loss
520g	518g	3g

Dolayantra. Collected *Shuddha guggulu* from milk is filtered through the cloth. After filtering, liquid part of *Guggulu* is continuously boiled with moderate heat, stirred in to solid form. This is kept over the sunlight and preserved it. *Triphala Churna* is prepared. Make homogenous mixture of *Shuddha Gandhaka, Shuddha Guggulu, Triphala churna* in equal quantity. Added S.Q of *Eranda taila* was mixing make into homogenous mixture. This was making into 1gm *Vati* by rolling the mixture between thumb and index finger. *Vati* were dried under shade and stored in glass container.

OBSERVATIONS

- After *Shodhana* colour of *Gandhaka* turned to pure yellow. *Gandhaka* was collected as fine pellets. This was achieved by taking wide mouthed pot.
- Melted *Guggulu* was slowly dropped through the cloth in the milk. The milk colour was changed. It was soft, waxy and brown in colour.
- *Triphala churna* obtained was very fine. After taking all the ingredients in equal quantities make into homogenous mixture. This homogenous mixture is triturated with S.Q of *Eranda taila* and Triturated well into homogenous mixture.
- After *Mardana* the final product was smooth, light brown in color. Paste was unsticky when rolled between thumb and index finger light brown colored small pills were prepared.

Precautions

- Trituration should be carried out slow and steady to prevent spillage of the material.
- Pills are to be preserved in absolute sterile and moisture free glass containers.

DISCUSSION

Most of the materials of *Rasa Shastra* are obtained from mineral sources containing various impurities which are responsible for causing toxic effects to body tissues. Therefore as a rule the *Rasa dravyas* are purified first by a specialized processing technique known as *Shodhana* before subjecting them for the main processing. It is done to remove visible and invisible impurities, to reduce the toxicity and to enhance the therapeutic property.

Gandhaka Shodhana

- *Gandhaka Shodhana* was done according to the method that was mentioned in *Rasendra Sara Sangraha*, a big *Ghritha* smear pot was taken and poured milk half of the portion of pot, a cloth was tied over the neck of the pot *Ashudda Gandhaka* was spread over the cloth, and this was covered with *Sarava*. *Sandhi bandana* has to be done to the pot. *Agni* was provided by 12-15 cow dung cakes arranged over the *Sarava*.^[2]
- Sulphur turns into liquid at 115.21°C.^[3] However, at that temperature, arsenic sulphides (Orpiment M.P 310°C^[4], Realgar M.P 360°C^[5]) which are one of the chief impurities of sulphur stay back in cloth and liquid sulphur flows freely through fine pores.
- *Agni* by cow dung cakes ensures uniform spreading of temperature and prevents Sulphur to get in contact with external oxygen, which otherwise cause oxidation and considerable weight loss.
- Now a day's most of the sulphur we get is extracted as bi-product of petroleum refining. This type of product may contain some amount of petroleum remnants; they dissolve in lipids as both Non-polar^[6] and finally get eliminated sulphur.
- *Gandhaka* is highly *Pitta vardhaka*. Milk is *Vata Pitta Shamaka Dravya*. Therefore, it can reduce 'teevra pitta vrudhikara' effect of *Gandhaka*.
- Milk is *Vishahara* and *Rasayana*. It can remove *Visha doshas* of *Gandhaka* and impregnate *Rasayana* property to *Gandhaka*.
- Final cleaning with hot water removes greasy remnants of milk.

Guggulu Shodana

- *Ashudda Guggulu* was taken may sometime lead to skin diseases, diarrhea, head ache, mild nausea, liver toxicity.^[7]
- The Oleo-gum-resin of the *Guggulu* is complex mixture of gum, minerals, essential oils, terpenes, sterols, ferrulates, flavanones and sterones.^[8]

- Resins are polyterpenes and their acid derivatives. Resins are very complex chemical compounds and are soluble in organic solvents^[9].
- They do not have affinity for water. The less soluble resins can be made to dissolve by a process known as running or sweating.^[10]
- The *Guggulu* yields two fractions upon ethyl acetate extraction. The ethyl acetate-soluble fraction contains 45% of the gum resin. The insoluble fraction consists of the carbohydrate gum, which is about 55% of gum resin. The bioactive components have been found in the ethyl acetate soluble fraction, where as the insoluble carbohydrate fraction is devoid of any hypolipidemic effects.^[11]
- While Ayurvedic *Shodana* process indicates the water extract of *Guggulu*, where gum is soluble and oleo resin is insoluble in water.
- During purification method, straining is described in most of the methods for *Shodana* of *Guggulu*. It may be inferred external impurities and insoluble aqueous part will be removed by staining method.
- The process may be understood that gum of *Guggulu* is very sticky in nature; it needs external force for straining in the liquid media.
- During moderate heating, some molecules of gum are separated; resin part is heavier than water so during pressing some part of resin also comes in the liquid media, and shows its effect. Resin also comes during the procedure of rubbing. Thus, the properties of liquid media are imbibed in the soluble gum part of *Guggulu* and increase the potency of soluble part of *Guggulu*.
- So, the *Guggulu* was purified the method was *Swedana* (boiling in liquid media) according to *Rasa Tarangini*^[12].

Churna preparation

Triphala churna, is prepared according to *Sarangadhara Samhita Madhyamakhand*^[13] is widely accepted and this was considered for present drug preparation.

Sieve No.120 is used to obtain super fine powder of *Churnas*. This will enhance bio-availability of drug through GIT.

Quantity of obtained *Churna* in manual pounding is relatively less when compared to that obtained in machine grinding. In these natural methods, fibre contents of raw materials are not added into sieved material.

Preparation of homogenous mixture of all component drugs

Gandhaka, Guggulu, obtained after *Shodana* and the fine powders of herbal drugs were mixed in the ratio as mentioned in the reference *Sloka* to obtain the homogenous mixture of *Vatari Guggulu*.^[14]

Mardana of Homogenous mixture with *Eranda taila*

Eranda taila is *Kapha Vata shamaka*, it also posses the properties like *Vrishya, Amapachana*. Homogenous mixture was taken in *Khalvyantra* and *Eranda taila* was added in sufficient quantity and triturated until it attains *Vati lakshanas*. By *Mardana* process, mixture gets properly mixed and material becomes soft, smooth and unsticky.^[15] *Mardana* facilitates particle size reduction and homogenization leading to modification of properties (*Gunantatradhana*) of the end product.

Preparation of *Vatari Guggulu Vati*

According to *Bhaishajya Ratnavali* dosage of *Vatari Guggulu* is 1 *Masha* (1g)^[16]. *Mardita* homogenous mixture of 1g was taken and rolled between thumb and index finger.

CONCLUSION

Pharmaceutical standardization of *Rasa oushadis* is an important requisite for the establishment of their efficacy and consistent biological activity. The pharmaceutical procedures involved in this study are *Shodhana, Churna Nirmana, Mardana* and preparation of *Vati* of *Vatari Guggulu*. *Shodhana* plays a vital role by removing the toxic nature and improving the therapeutic efficacy, there by rendering a safe and effective formulation.

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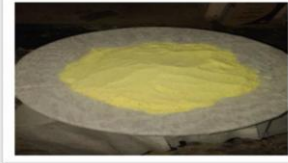
Images Showing the Preparation of *Vatari Guggulu*



Ashuddha Gandhaka



Pot filled with milk placed in a pit



Gandhaka is placed over cloth tied to the pot



Pot is sealed with *Sarava*



Ignited cow dung cakes over the *Sarava*



Shodhita Gandhaka



Shuddha Gandhaka



Ashuddha Guggulu



Made into *Pottali*



Pottali subjected to *Swedana*



Squeezed after *Swedana*



Reheated on mild



Shodhita Guggulu



Shuddha Guggulu



Haritaki



Vibhitaki



Amalaki



Triphala Churna



Eranda taila



After all these ingredients mixing into homogenous mixture final *Vatari Guggulu vati*