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PHARMACEUTICAL STANDARIZATION OF GANDHAKAKALPA

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ABSTRACT

Gandhakakalpa (GK) is a *Rasoushadhi* mentioned in *Basavarajeeyam* indicated for all types of *Kushta* (obstinate skin diseases including Eczema). *Gandhaka* (Sulphur), *Triphala (Homogenous mixture of Haritaki, Vibitaki, Amalaki), Trikatu (homogenous mixtureof Shunti, Pippali, Maricha), Vidanga (Embeliaribes)* and *Chitrakamula (Plumbagoxylanica)* are the main ingredients of GK. *Shodhana* (purification), *Choornodaka Nirmana, Choorna Nirmana* arethe important steps involved in preparation of GK. shuddha Gandhaka & shuddha Chitramula were taken. The remaining herbal churnas were added in appropriate amount as mentioned in reference of the drug. After obtaining homogenous mixture. It was made 500mg tablets. Till date no standards are available for the above drug. Therefore the present study has been planned to standardize the method of preparation of an important Herbo-mineral formulation i.e. *Gandhakakalpa.*

KEYWORDS: *Gandhakakalpa, Rasoushadhi, Basavarajeeyam, Kushta.*

INTRODUCTION

The nature possesses immensely valuableand 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*. Heating, boiling, quenching, dipping, trituration, distillation, washing,

filtering etc. are the important procedures involved in drug manufacturing. During *Shodhana, Marana, Jarana, Murchchana, Bhavana* etc. the above mentioned procedures are adopted. All theseprocedures play a significant and vital role in the pharmaceutical processing of drug materials. Mineral materials as such are claimed to be toxic by *Ayurvedic Rasa* texts. By adopting specialized pharmaceu tical procedures like *Shodhana, Marana, Jarana, Murchana* etc. they are converted into nontoxic, safe, and potent therapeutic forms. The herbal drugs and animal products used during these processes form a kind of Herbo-mineral complex. When processed with metals and minerals they make them not only useful therapeutically but also enhance the disease combating properties in them. Above formulation is combination of pharmaceutical process rarely adopted by modern pharmacy. It involves shodana process of Gandhaka & Chitraka mula & remaining herbal drugs were added in appropriate amount as mentioned in the reference of drug. Reference for drug is taken from Basavarajeeyam Kustha chikistha. Analytical study is essential part of any thesis scientific work. It tells the about correlation between correlation between predetermined hypo thetical values and actual results obtained. It was given us valuable information about safety, efficacy, stability, and contraindications of any formulation. The presence of free metel or particles of large size in any formulation can lead to damage of vital organs of the body. hence highly sensitive modern parameters are employed for gaining information about identity form, particle size, and structure of contents of the formulation considering this an effort has been made to analyze Gandhakakalpa an important Rasoushadi through X- ray diffraction, Scanning elctranic microscopy, Energy dispersive –X ray analysis, Particle size, U.V spectroscopy, zetapotentional and antioxidant text.

AIMS AND OBJECTS

To standardize the method of Gandhakakalpa.

MATERIALS AND METHODS

Chief Reference:[1] Basavarajeeyam chapter no.6 sloka no. 248-252.

Total pharmaceutical study was carried out in four stages

- **STAGE I**

1. Gandhaka Shodana
2. Choornodaka Nirmana
3. Chitrakamula churna

- **STAGE II**

1. Triphala churna Nirmana
2. Trikatu choorna Nirmana
3. Vidanga choorna Nirmana

- **STAGE III**

Mixing of all churnas to from homogenous mixture.

- **STAGE IV**

Gandhakakalpa vati nirmana.

Gandhakakalpa preparation

Reference: Basavarajeeyam [sloka 248 -253].

Materials: Gandhaka -1800gms, Triphala -324gms, Trikatu-324gms, Chitrakamula -300gms, Vidanga- 108 gms.

Methods: Mixing.

Appartus: Pot, cloth, cowdung cakes, khalvayantra, ladle.

Procedure: The pharmaceutical procedures adopted in this study are shodana, Choornodakanirmana, choornanirmana. Gandhaka shodana was done according to Rasendrasarasangraha[2] *Gandhaka shodhana* was done by *puta* method, an earthen pot was filled with Cow's milk, and its opening was tied with a double layered cloth, over this coarse powder of *Gandhaka* was spread and was sealed with an earthen lid. Over the lid eight cow cakes were ignited and melted *Gandhaka* in form of small pellets was collected in a pot having cow milk later subjected to washing by hot water. Purified *gandhaka* obtained was 1850gms. Churnodaka Nirmana was done by the reference taken from Rasatarangini.[3] Water taken a vessel & sudha churna is added & mixed. Kept it over night &next day supernatant liquid is collected. Filter though the filter paper. choornodaka nirmana was done.Chitraka mula Shodana, was done by the reference taken from Rasatarangini.[4] Chitrakamula soaked in choornodaka, colour of chitrakamula turned in to brown colour. Sodhana reduces the teekshnatva of Chitrakmoola.

Shoda nawasper formed to Gandhaka[2000gms], Chitrakamula[350gms]. Choorna Nirmana was done for Triphala[360gms] Trikatu[360gms] Vidanga[150gms]. Gandhakakalpa was prepared by adding the mentioned amount of ingredients i.e Shodhitha Gandhaka[1850gms], Shoditha Chitrakamula[300gms], Triphala[324gms], Trikatu[324gms]Vidanga[108gms] to from homogenous mixture were made in to Gandhakakalpa [500mg]tablets.

OBSERVATIONS

- Colour of *Gandhaka* became bright yellow after *shodhana.*
- *Gandhaka* was collected as fine pellets.
- Colour of Chitrakamula turned in to brown colour.
- All the ingredients were mixed in proper amount as mentioned in reference of drug to obtain homogenous mixture which was Green in colour.
- 500 mg. Tablets of Gandhaka were prepared in TTD's Sri Srinivasa pharmacy, Tirupati and storeded in an air tight container.

RESULTS

Table No. 1: Showing the result of Gandhaka Shodhana.

Initial Weight	Final Weight	Loss of Gandhaka
2000 gm	1950 gm	50gms

Table No 2: Showing the Results of shodhana of Chitrakamoola.

Weight of Chitrakamoola	Weight after Shodhana	Loss in Weight
350 gm	325 gm	25gms

Table No. 3: Showing mixing of all ingredients to obtain homogenous mixture of GK.

Sr. No.	Name of the drug	Weight of drug taken
1.	*Shuddha Gandhaka*	1850gms
2.	*Shuddha chitrakamula*	300gms
3.	*Triphala churna*	324 gms
4.	*Trikatu churna*	324gms
5.	*Vidanga churna*	108gms

Gandhakakalpa[5] was prepared by adding the mentioned amount of ingredients i.e Shodhitha Gandhaka[1850gms], Shoditha Chitrakamula[300gms], Triphala[324gms], Trikatu[324gms] Vidanga[108gms] to from homogenous mixture were made in to Gandhakakalpa [500mg]tablets.

Table No. 4: Showing the total amount of drug obtained.

Weight of total contents taken	Weight of final drug obtained
2856 gm.	2850 gm.

Image No. 1: Shuddha Gandhaka.

Image No. 2: Shuddha Chitrakamula.

Image No. 3: Triphala Churna.

Image No. 4: Trikatu Churna.

Image No. 5: Vidanga Churna.

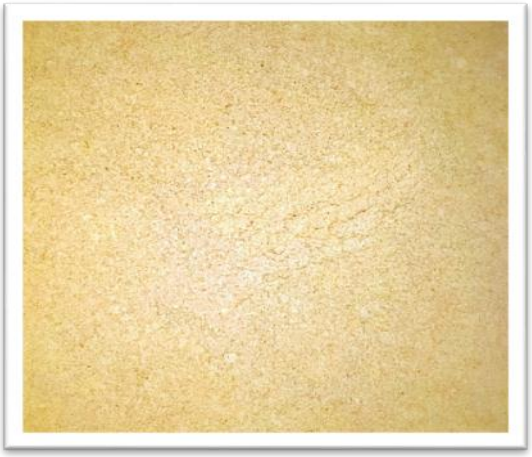

Image No. 6: Homogenous mixtureobtained after mixing all ingredients.

Image No. 7: Gandhaka Kalpa Vati.

DISCUSSION

The pharmaceutical procedure involved in this study is *Shodhana*, choornodaka nirmana, choorna nirmana. *Shodhana* is done for *Gandhaka, Chitrakamula*, to remove visible and invisible impurities, to reduce the toxicity and to enhance the therapeutic property.

Gandhaka shodhana: Gandhaka is highly *Pitta vardhaka.*[6] Milk is *Vata Pitta shamaka dravya.*[7] Therefore, it can reduce *'pitta rujakara* effect of *Gandhaka*. Milk is *Vishahara* (anti-toxic) and *Rasayana*. It can remove *Visha doshas* of *Gandhaka* and im pregnate *Rasayana* property to *Gandhaka*.

***Chitraka moola Shodhana*:** Chitraka mula Shodana, was done by the reference taken from Rasatarangini. Chitrakamula soaked in choornodaka, colour of citrakamula turned in to brown colour. Sodhana reduces the teekshnatva of Chitrakmoola.[8]

***Churna preparation*:**[9] Triphala churna, Trikatu choorna, Chitrakamoola churna, Vidanga churna, are prepared according to Sarangadhara Samhita madhyama khanda is widely accepted and this was considered for present drug preparation.

Mixing of all Churnas to from Homogenousmixture:[10] Shodana was performed to Gandhaka[2000gms], Chitrakamula[350gms]. Choorna Nirmana was done for Triphala[360gms] Trikatu[360gms] Vidanga[150gms]. Gandhakakalpa was prepared by adding the mentioned amount of ingredients i.e Shodhitha Gandhaka[1850gms], Shoditha Chitrakamula[300gms], Triphala[324gms], Trikatu[324gms] Vidanga[108gms] to from homogenous mixture were made in to Gandhakakalpa [500mg]tablets.

Preparation of Gandhakakalpa tablets: *Gandhakakalpa* powder was subjected to pill processing in pill making machine and pills of 500m.g were obtained by compression method.

CONCLUSION

- Pharmaceutical Standardization is the first step towards Standardization of any formulation. So it should be done with utmost accuracy. This leads to re- producibility of drug and production of safe and efficacious drug.
- The reference for the present study was taken from Basavarajeeyam Kustha Chikitsa.
- The pharmaceutical procedure involved in this study is *Shodhana*, *Choornodakanirmana*, *choornanirmana*.

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