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PHARMACEUTICAL PREPARATION AND PHYSIO- CHEMICAL ANALYSIS OF *AMRITA GUGGULU* PREPARED WITH OR WITHOUT *MURCHHIT GHRUTA*

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ABSTRACT

Ayurvedic medicines are prepared in rasa shastra as *rasausadhi* and *bhaishajya Kalpana*. It is essential to maintain the analytical standards of each sample for better therapeutic effect. *Amrita guggulu* of *Chakradutta Vatarakta Chikitshaprakaram* reference is one such herbal formulation that contain a major proportion of *shhoddhita guggulu* and other ingredients of *Triphala, Trikatu, Danti, Vyosha, Vidang, Triphala, Tvak (Dalchini) and Trivrit and Guduchi*. In this preparation two samples taken one is without *Ghruta murchhana* levigation and other with bhavana i.e., *Ghruta Murchhana*. *Ghruta Murcchana* is a unique pharmaceutical process prior to the preparation of *Amrita guggulu* formulations. The present study was focused on analytical studies of without *murchhita goGhruta* bhavana and *Murcchita Go-Ghruta* bhavana which was carried out separately on the basis of classically illustrated organoleptic tests, modern physio-chemical parameters like Loss on Drying at 110°C, Acid Value, Alcohol soluble value, water soluble extractive, total bacterial count, total fungal count, disintegration time in N/10 Hcl, In N.S. in different parameters sample which has bhavana of *Murchhit Go-Ghruta* has more therapeutic than sample I. Hence the present work may be used for the quality assessment and standardization of *Amrita guggulu*.

KEYWORDS: *Amrita guggulu, murchhit go-Ghruta,* pharmaceutical preparation, physio-chemical analysis.

INTRODUCTION

In Bhaishajya Kalpana there are five types of basic preparation based on procedure. These are *Swarasa, kalka, shrita, sheeta and phanta* and so many derivative preparations. One of them is *Guggulupaka Kalpana*. In Indian pharmacopoeia *Guggulu Kalpana* specially mentioned. Ayurveda is wonderful science, *guggulu* is one among the excellent binding agents. *Amrita Guggulu* preparation is one such preparation which is mentioned in different textbooks.**",** *Amrita Guggulu* is taken as formulation from *Chakradutta* Vatarakta chikitshaprakranam.[1] The main ingredients of *Amrita Guggulu* are *Guduchi, Guggulu, Danti, Vyosha, Vidang, Triphala, Tvak (Dalchini) and Trivrit.*

AIM AND OBJECTIVES

The present study aimed to prepare and do the physio-chemcial analysis of these two samples of *Amrita Guggulu* (*Chakradutta Vatarakta Chikitshaprakaram*) prepared with variation in *Bhavana drug* (levigation).

MATERIALS AND METHODS

Preparation of two samples of *Amrita guggulu* as per *Chakradutta Vatarakta Chikitshaprakaram* by mixing of *murchhit Ghruta* in second sample. i.e., the two samples are; *Amrita guggulu* without *Murchhit Ghruta* (sample 01) and another *Amrita Guggulu* with *Murchhit Ghruta* (sample 02).

Preparation of Amrita guggulu

Collection, Identification and cleaning of the ingredients. The ingredients namely *Guduchi, Guggulu, Danti, Vyosha, Vidang, Triphala, Tvak (Dalchini)* and *Trivrit* were taken from Ras shastra department. Fresh *Guduchi* were collected locally by itself. The drugs were identified and authenticated by experts at Rasa shastra and Dravyaguna department of Government Ayurveda College, patna, Bihar. The collected drugs were washed and dried properly before use.

***Guggulu*[2] *shodhana* - (**purification of *Commiphora mukul* (hook ex stocks) Engl.**)**

Shodhana (purification) in *Triphala kwatha* as per Rasa Jal Nidhi reference.

Ingredients and Quantity

Raw Guggulu – **2.300 kgs**

Triphala – **4.600 kgs**

Water – **38 ltrs**

Guduchi – **5 kgs**

Table -01.

s.no.	*Ingredients*		*Latin name*	*Family*	*Part used*	*Quantity (fine powder)*
1.	Dantimool		*Baliospermum montanum (wild.) Muell-Arg.*	Burseraceae	*Root, Leaf, seed*	*100 gms*
2.	*Trikatu*	*Pippali*[3]	*Piper longum Linn.*	*Piperaceae*	*Fruit, Root*	*100 gms*
		Maricha [4]	*Piper nigrum*	*Piperaceae*	*Fruit*	
		Shunthi[5]	*Zingiber officinale Roscoe*	*Zingiberaceae*	*Dry rhizome*	
3.	*Triphala*	*Amalaki*[6]	*Emblica officinalis* Gaertin	*Euphorbiacae*	*Fruit*	*140 gms*
		Haritaki[7]	*Terminalia chebula* Retz	*Combretacae*	*Fruit*	
		Vibhitaki[8]	*Terminalia bellirica (Gaertin.) Roxb*	*Combretacae*	*Fruit*	
4.	*Vayavidang*[9]		*Embelia ribesm* Burm.f.	Primulaceae	*Fruit, Leaf, root*	*100 gms*
5.	*Twak*[10]		*Cinnamomum verum Presl*	Lauraceae	*Bark*	*100 gms*
6.	*Nisotha*[11]		*Operculina turpethum* (Linn.) Silva manso.	Convolvulaceae	*Root*	*42 gms*

Preparation

Table -02: sample A.

S. no.	*Ingredients(churna)*	*Amount*
1.	*Triphala churna*	*50 gms*
2.	*Trikatu churna*	*50 gms*
3.	*Dantimool churna*	*50 gms*
4.	*Twak churna*	*50 gms*
5.	*Vayavidang churna*	*50 gms*
6.	*Amrita churna*	*50 gms*
7.	*Nisotha churna*	*20 gms*
8.	*Water as per requirement*	

Table 03: sample B.

S. no.	***Ingredients(churna)***	***Amount***
1.	*Triphala churna*	*50 gms*
2.	*Trikatu churna*	*50 gms*
3.	*Dantimool churna*	*50 gms*
4.	*Twak churna*	*50 gms*
5.	*Vayavidang churna*	*50 gms*
6.	*Amrita churna*	*50 gms*
7.	*Nisotha churna*	*20 gms*
8.	*Ghruta*	*15 gms*
9.	*Water as per requirement*	

All the ingredients from 1 to 5 were crushed and powdered and sieved through sieve number 85. These were then mixed homogeneously and added to a *Khalwa yantra* and added with sufficient quantity of *Soddhita guggulu* (resin of *commiphora mukul*) till it was mixed completely. *Bhavana* (levigation) was carried out till a pill-rolling consistency of the paste was obtained and then capsules of 500 mg were rolled as per the reference and dried under shade. The process was repeated with *murchhit Ghruta* of *Bhavana* (levigation) and thereby two samples of *Amrita guggulu* were prepared.

The following analysis was conducted on the two samples

Total ash, acid-insoluble ash, alcohol-soluble extractive, water-soluble extractive, loss on drying, pH at 1%, qualitative analysis of capsules like uniformity of weight, hardness, friability, disintegration time in N/10 Hcl and in N.S.

RESULTS

Results of *Guggulu shodhana*

225gm of purified *guggulu* (purified *commiphora mukul*) obtained.

S. No.	Samples	Sample detailed	Quantity
1.	Sample 1	*Amrita guggulu without murchhit Ghruta*	1.350 kg
2.	Sample 2	*Amrita guggulu with murchhit Ghruta Bhavana* (levigation)	1.420 kg

Results of Analysis of *Amrita guggulu*

Table 3: Organoleptic characters of *Amrita Guggulu.*

Characters	**Sample 1**	**Sample 2**
Colour	Brownish dark	Black
Odour	Tikshnagandhi	Gomutragandhi
Taste	Kashaya	Kashaya

Table 4: Physio-chemical analysis of *Amrita Guggulu.*

		Sample 1	Sample 2
1.	Total ash	6.51 g/100g	*6.93 g/100g*
2.	Acid-insoluble ash	0.64 g/100g	*0.87g/100g*
3.	Alcohol-soluble extractive	38.19 g/100g	*39.02g/100g*
4.	Water-soluble extractive	40.45 g/100g	*41.13g/100g*
5.	Loss on drying at 110°C	9.12 g/100g	*9.48g/100g*
6.	Total bacterial count	60 Cfu/g Not more than 10^{5}*	*55 cfu/g not more than* 10^{5*}
7.	Uniformity of weight	*Within the limit of 500 mg*	*Within the limit of 500 mg*
8.	Total fungal count	<10 Cfu/g Not more than 10^{3}	<10 Cfu/g Not more than 10^{3}
9.	Disintegration time in N/10 Hcl	24 min	*20min*
10.	Disintegration time in N.S.	35 min	*28 min*

Ingredients in churna form:

Preparation of Amrita Guggulu:

DISCUSSION

Guduchi, Guggulu, Danti, Vyosha, Vidang, Triphala, Tvak (Dalchini) and *Trivrit* are the ingredients of *Amrita guggulu* of *Chakradutta Vatarakta Chikitshaprakranam*. Similar reference is also obtained in *Bhaishajyaratnavali vataraktarogadhikar*. The safe dose of the formulation is found to be 03 gms. In a day. It has various indications like in *Vatarakta, kustha, Arsha, Agnimadhaya, Prameha, Aamvata, Shotharoga* There was a net loss of 15% of *Guggulu* after *Shodhana with the help of Triphala kwatha*. As there is no reference for *Bhavana* (levigation) is to be given, the formulation was prepared in two samples with once with the help of *Murchhit Ghruta* and another without help of *Murchhit Ghruta*. Addition of *Bhavana* with respect to the preceding sample was done with an expectation that this could bring a well differentiation in the analytical parameters as *Bhavana* can reduce disintegration time of the formulation and in turn increase the bioavailability of the drug and thereby

increasing absorption and speedy action of the drug. Also, from previous research works, it is proved that it is a process that affects the Physico-chemical and biological properties of a dosage form. Organoleptic parameters of each of the samples were performed. The specific odour may be due to the aromatic components present in the *Shodhana dravya* - *Triphala* and the *Bhavana dravya – Murchhit Ghruta*. The consistency became soft and fine with *Bhavana* (levigation).

Physio-chemical Parameters

There were some differences in some of the parameters of the two samples prepared. There was a slight increase in total Ash values among the samples. Total ash indicates the presence of inorganic contents in the sample. But Acid-insoluble ash values of the samples were more or less in the same range. The Acid-insoluble ash value indicates the percentage of insoluble inorganic content and thereby indicates the physiological availability of the drug. There was only a slight increase in alcohol-soluble extractive values compared to the water–soluble extractive values among the samples. This indicates that more water-soluble principles were added. Loss on drying (LOD) of sample 2 is higher compared to other samples, which were in a similar range. Uniformity of weight for all samples was within the limits of 500mg. The highest weight was 510 mg and lowest 498mg. The disintegration time obtained for the samples was 24 min, 20 min. The binding capacity and hygroscopicity of Ghruta especially its quantity may alter the parameters of capsule such as hardness, disintegration, and friability which ultimately interferes with the kinetics of the final product in its absorption and thus its therapeutics.

CONCLUSION

Amrita guggulu of Chakradutta Vatarakta Chikitshaprakaram is a potent drug having various indications of *Vatarakta*[12], *Kustha, Arsha, Agnimadhaya, Prameha, Aamvata, Shotharoga* As the *Bhavana* (levigation) are not mentioned in the reference, two samples of the formulation were prepared namely *Amrita guggulu of* without *Bhavana* (sample 1), *Amrita guggulu* of with Murchhit Ghruta *Bhavana* (sample 2). The physicochemical parameters of the samples were analyzed and compared. It was found that some of the parameters were modified in the sample II. The hardness of the samples was reduced which reduced the disintegration time. As the disintegration time is reduced, the bioavailability of the drug will be increased and thus quick action of the drug is expected.

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