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Comparative Analytical Study of *Lakshadi Guggulu*

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ABSTRACT

Lakshadi guggulu is one of the solid dosage forms in Ayurvedic formulation. It is indicated in bone related diseases and fracture healing, low bone density, fracture, pain in joints. Further the manufacturers will add disintegrating agents during the preparation to lessen the disintegrating time.

In the present work an attempt was made to prepare lakshadi guggulu as per references available in authoritative books of Ayurveda. The prepared lakshadi guggulu was tested for common parameters of tablets and was compared with the same parameters of market samples of lakshadi guggulu. The results are as follows:

Parameter	Sample prepared in lab	Market sample 1	Market sample 2
Disintegration time (DT)	90 min	60 min	120 mins
Friability	0%	0%	0.1%
Hardness	4	3	6

It was concluded from the study that lakshadi guggulu prepared in the lab and was having more disintegration time and hardness than the samples available in market.

KEYWORDS

Lakshadi guggulu, Disintegration time, Hardness, Friability



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INTRODUCTION

Guggulu (*Commiphora mukul*) is one among the best binding agents and is also a usefull herbal medicine. Out of *guggulu* varieities *mahishaksha* and *kana guggulu* are preferred or medicine. It is widely used in the treatment of *Vata Dosha*. *Lakshadi guggulu* is one among the Ayurvedic formulation which is in tablet form. It is indicated in bone related diseases and fracture healing, low bone density, fracture, pain in joints.

Among the *lakshadi guggulu* available in market, most are manufactured by using tablet punching machine. Most of the manufacturers may use disintegrating agents and other excipients in the preparation. *Lakshadi guggulu* prepared manually will not have any excipients in it. To maintain the quality of final preparation, tablets have to undergo certain analytical standard parameters like organoleptic characters, friability, and disintegration time, hardness, uniformity of weight, loss on drying and ash value^{1,2}.

In this work, an attempt was made to prepare *lakshadi guggulu* manually and compare with market samples of *lakshadi guggulu* for a few parameters of analysis of tablets.

MATERIALS AND METHODS

In this work an attempt was made to prepare *lakshadi guggulu* manually and

analyzed them using a few parameters mentioned in pharmacopeia. To compare the values, two market samples were collected from Ayurvedic medicine dispensing units of Hassan manufactured by GMP certified company. The details of samples as follows:

Sample 1 (S1): Manually rolled *lakshadi guggulu*

Sample 2 (S2): Market sample 1

Sample 3 (S3): Market sample 2

Sample 1 preparation^{3,4,5}:

Ingredients: *Laksha*, *Astishrunkala*, *Ashwagandha*, *Gangeruka*, *Shuddha guggulu*

Equipments: *Khalwa Yantra*, weighing balance, measuring cylinder.

Methods of preparation:

Astishrunkala was taken, weighed and crushed in *khalwa yantra*, then *kashaya* was prepared in the ratio of 1 part drug (10g): 8parts (80ml) of water reduced to 1/4th (20ml).

Kashaya, 5ml, was taken and kept for boiling, to this 25g of *shuddha guggulu* was added, and stirring was continued till *shuddha guggulu* completely melted. All other ingredients were taken in 5g each of fine powder and added to the above mixture. Stirring was done till it becomes homogenous mixture. Mixture was rolled



into 500mg *vati* (tablet) with the help of *ghrita* (ghee).

Analytical study:

Disintegration time:

Materials required: Disintegration apparatus, stop watch, distilled water.

Procedure:

Distilled water was filled into disintegrating tank up to the mark of 750ml in such a way that the highest point is 2.5 cm below the surface of liquid and its lowest point is 2.5 cm above the bottom of the beaker. The temperature in the beaker was set to 37⁰c. Each tablet was introduced into each chamber and disc was put over the tablet respectively. The apparatus was operated with 30cycles rpm. The time duration at which all the tablets disintegrated was noted.

Friability:

Materials required- Friabilator, stopwatch, Petridish, analytical balance.

Procedure:

10 tablets were weighed accurately. These tablets were placed in drum and rotated for 100 times i.e. 25 rpm for 4 min. tablets were removed from drum and then weighed again.

% of weight loss = $\frac{\text{Initial weight} - \text{final weight}}{\text{Initial weight}} \times 100$

Hardness:

Materials required: Monsanto hardness tester

Procedure: The tablets were kept in between the jaws of hardness tester and reading of the indicator adjusted to zero. The force applied to the edge of the tablet was gradually increased by moving the screw, until the tablet was broken. The reading was noted from the scale which indicates the pressure required in kg on the tablet to break the tablet.

OBSERVATIONS AND RESULTS

Table 1 Organoleptic features

Characte rs	S1	S2	S3
Taste	<i>Tikta</i>	<i>Tikta</i>	<i>Tikta</i>
Colour	Dark brown	Brown	Brown
Odour	Characteri stic	Characteri stic	Characteri stic
Form	Tablet	Tablet	Tablet
Consisten cy	Hard	Hard	Hard

Table 2 Analytical parameters

Parameter	Sample 1	Sample 2	Sample 3
Disintegration time (DT)	90 min	60 min	120 min
Friability	0%	0%	0.1%
Hardness	4	3	6

DISCUSSION

Lakshadi guggulu is widely used in the Ayurvedic field. It is very effective in osteoporosis and it is also known to fasten the healing process in bone fracture, low bone density and pain in joints. Sample 1 was prepared manually by *agnisiddha*



method where *shuddha guggulu* was melted and other *churnas* were added to it. Sample 2 was taken from market.

Analytical parameters were checked for disintegration, hardness, friability. Once the tablets are manufactured from company till it reaches the consumer, it should withstand mechanical stress, during packing, storing, transportation etc. hence to check its withstanding capacity of resistance, friability and hardness test was done. To check the time required for the initiation of absorption of the drug, disintegration time was done.

Sample 1 has more disintegrating time, hardness, friability as only the ingredients mentioned in classics were taken. Sample 2 was having less disintegrating time, hardness as they might have added any disintegrating agent.

Sample 3 has more disintegrating time, hardness than other 2 samples, it may be because of addition of less disintegrating agent or addition of binding agents.

The Pharmacopial standard of tablet-hardness of 4kg is considered to be minimum for satisfactory tablet, the disintegrating time is 15 to 30 minutes. Friability maximum weight loss of a tablet should not be more than 0.8 to 1%. So as per the standards manually prepared *lakshadi guggulu* fulfills parameter of friability and hardness along with other

sample. Disintegration time of sample 1 was more than the sample 2 due to not adding any disintegrating agents.

CONCLUSION

Lakshadi guggulu (sample1) prepared in lab fulfilled the analytical parameters as per standards compared to market available samples.



REFERENCES

1. Government of India, Ministry of health and family welfare, Department of AYUSH. Laboratory guide for the analysis of Ayurveda and Siddha formulations. 1st ed. New delhi: Central council for research in Ayurveda and Siddha; 2009.pg 65, 66
2. <https://en.m.wikipedia.org>. Friability. 22 February 2018
3. Sri Govinda das ji. Bhashagratna shri bramhashankar Mishra editor. Bhaishajyaratnavali.chowkamba Sanskrit Bhavan. Vol II. Pg 774, 775
4. Sharma priavat. Chakradatta. English translation. Choukamba orientalia: Dehli: 1994. Pg 386
5. Late Maharaj Ji Krishnananda. Rasatantra sara and siddha prayoga Sangraha. 22nd ed. Rajasthan: Krishna gopal Ayurved Bhavan; 2010.Vol 1. Pg 322