

COMPARATIVE ANALYTICAL STUDY OF ABHA GUGGULU

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ABSTRACT

Abha guggulu is one of the solid dosage form in Ayurvedic formulation. It is indicated in bone related diseases and fracture healing, low bone density, fracture, pain in joints.

Abha guggulu was prepared as per references available in authoritative books of Ayurveda with two different methods. Thus prepared *Abha guggulu* was tested for common parameters of tablets. The results are as follows:

Parameter	Sample 1(Agni siddha method)	Sample 2(Kuttana method)
Disintegration time (DT)	60 mins	90 mins
Friability	0.003	0.001
Hardness	4 kg	6 kg

Although, it could be concluded that both samples of *Abha Guggulu* i.e.. kuttana method and agni siddha method of *Abha Guggulu* fulfills the standard parameters. But, *Abha Guggulu* prepared by Kuttana method required more disintegrating time and hardness value compared to agni siddha method. This means, Kuttana increases the hardness and disintegration time. Friability test for both the samples have almost similar values.

KEYWORDS: Abha guggulu, Disintegration time, Hardness, Friability.

INTRODUCTION

Abha guggulu is one among the Ayurvedic formulation which is in tablet form. Abha guggulu is a widely used Ayurvedic medicine which has guggulu as a major ingredient and indicated in bone related diseases and fracture healing.

To maintain the quality of final preparation, tablets has 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 abha guggulu manually by two different methods for analysis of few parameters of tablets.

MATERIALS AND METHODS

In this work an attempt was made to prepare Abha guggulu manually in 2 different methods and analyze them by using a few parameters mentioned in pharmacopeia. The details of samples are as follows:

Sample 1 (S1): Agni Siddha method

Sample 2 (S2): Kuttana method

Sample 1 preparation: Agni siddha method^[3,4]

Ingredients: *Abha, Triphala, Trikatu, Shuddha Guggulu*

Equipments: Khalwa Yantra, weighing balance, seive.

Methods of preparation

Shuddha guggulu(14g) was melted, in melted guggulu fine powder of all the ingredients (2g each) were added and stirred well till it become homogenous. Mixture was rolled with the help of go-gritha (ghee) into 500mg vati (tablets). Then it was dried.

Sample 2 preparation: Kuttana method

Ingredients: *Abha, Triphala, Trikatu, Shuddha Guggulu*

Equipments: Khalwa Yantra, weighing balance, sieve.

Methods of preparation

Shuddha guggulu(14g) was pounded in khalwa yantra after shodhana, then added fine powder of all the ingredients in *guggulu* then pounded till it become homogenous. The mixture was rolled manually into 500mg vati (tablet) by smearing the *go-gritha* (ghee).

Analytical study

Disintegration time

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

Procedure

Distilled Water was filled in disintegrating tank up to mark 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, temperature in a beaker was set to 37°C. One tablet was introduced to each tank and disc was added. The apparatus was operated with 30 cycles 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.

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

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.

Characters	S1	S2
Taste	Katu, Tikta	Katu, Tikta
Colour	Dark brown	Dark Brown
Odour	Characteristic	Characteristic
Form	Tablet	Tablet
Consistency	Hard	Hard

Table 2: Analytical parameters.

Parameter	Sample 1	sample 2
Disintegration time (DT)	60 mins	90 mins
Friability	0.003	0.001
Hardness	4 kg	6 kg

DISCUSSION

Abha Guggulu is effective in relieving pain reduction of swelling and promoting the process of healing of the fractures as well as in curing the allied disorders associated with the Fractures. Sample 1 was prepared manually in Agni siddha method where shuddha guggulu was melted and other churnas were added to it. Whereas Sample 2 was prepared manually in kuttana method where soon after the shodhana, guggulu was pounded in khalwa yantra, then added fine powder of all the ingredients in *guggulu* then pounded till it become homogenous.

Analytical parameters were checked for disintegration, hardness, friability. To check the time required for the initiation of absorption of the drug, disintegration time was done. 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.

Sample 1 is having less disintegrating time, friability and hardness may be due to involvement of agni to the guggulu. The Sample 2 has more disintegrating time; hardness compared to sample 1, this may be due to the method of preparation i.e.. Kuttana method. And also it may also depend upon the drugs, which was used in the preparation like more amount of starch content in the drug, fibrous content of the drug like babbulu.

The Standard parameters of guggulu – hardness of 4kg is considered to be minimum satisfactory, friability-0.8 to 1%, disintegration- 3hrs.¹ Friability maximum weight loss of a tablet should not be more than 0.8 to 1%. So as per the standards manually prepared both Abha guggulu fulfills parameter of friability and hardness along with other sample. Disintegration time of sample 2 was more than the sample 1 due to not adding any disintegrating agents.

CONCLUSION

The study reveals that sufficient quality control parameters were followed during the preparation of Abha Guggulu. Sample 1 and sample 2 of Abha guggulu fulfilled the analytical parameters as per the standards.

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