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PHYSICO-CHEMICAL ANALYSIS OF *SHANKHA BHASMA* W.S.R. TO *RASACHANDANSHU (DAGDHIKRUT)*

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ABSTRACT

Classical texts have mentioned various methods of drug preparation. Likewise, different methods for the preparation of *Shankha Bhasma* has been mentioned in various classical texts like *Rasatargini, Rasachandanshu,* etc. One of the method is *Dagdhikaran* of *Shankha* which is more affordable, easier and feasible method. In this study, *Shankha Bhasma* was prepared using *Dagdhikaran* method as mentioned in *Rasachandanshu*. Whole pieces of Conch shell were taken and analysed physico-chemically before and after *Dagdhikaran*. It is observed that *Shankha Bhasma* prepared by *Dagdhikaran* method showed *Bhasma siddhi Lakshanas*. Hence, it could be used for external application.

KEYWORDS: Shankha Bhasma, Physico-chemical, Dagdhikaran, Rasachandanshu.

INTRODUCTION

Ayurveda is the most ancient and established science known to us. Different classical texts have mentioned various methods of drug preparation. Likewise, different methods for the preparation of *Shankha Bhasma* has been mentioned in various classical texts like *Rasatargini, Rasachandanshu,* etc. The commonly followed method for the preparation of *Shankha Bhasma* is by subjecting it to *Laghuputa*. But there also one method i.e., *Dagdhikaran* of *Shankha* which is more affordable, easier and feasible method. *Shankha Bhasma* prepared by this method could be used for external application. Hence, the current study is aimed to prepare *Shankha Bhasma* by *Dagdhikaran* method and analyse it physic-chemically.

AIM

To prepare *Shankha Bhasma* using *Dagdhikaran method* and analyse it physico-chemically.

OBJECTIVES

1. To prepare *Shankha Bhasma* using *Dagdhikaran* method w.s.r. to *Rasachandanshu.*
2. To analyse *Shankha Bhasma* physico-chemically.

MATERIAL AND METHODS

A) Material

Raw material- Whole pieces of *Shankha* (Conch Shell) were procured from local market.

Instruments

1.	Weighing balance	7.	Sieve No 125
2.	Stainless steel vessel	8.	Petridish
3.	Tongs	9.	Hot air oven
4.	Gas cylinder	10.	Dessicator
5.	Gas stove	11.	Whattman filter paper no 41
6.	Muslin cloth	12.	Muffle furnace

Chemicals used for analytical tests

1.	Dilute hydrochloric acid
2.	Distilled water

B) Methods

Preparation of *Shankha bhasma*[1]

वन्हौ प्रोत्फुल्लयोत्किंवा सम्यक् लघुपुटे।
कुन्दवज्जायते भस्म सर्वयोगेषु योजेयते ॥
रसचंडांशु पुर्वखंड ३२२

Approximately 140gms of Pieces of *Shankha* were popped up on agni. Then it was powdered with the help of *Khalva yantra*.

Analysis of *SHANKHA* (Whole Conch shell)

1.	Macroscopic description
2.	Colour
3.	Odour

Physico-chemical analysis of *SHANKHA BHASMA*

1.	Colour
2.	Odour
3.	Particle size
4.	Total Ash%
5.	Acid insoluble ash%
6.	Loss on drying%
7.	*Rekhapurnatva*
8.	*Varitarva*

Methods for Physico-chemical analysis of *Shankha Bhasma*[2]

1. Determination of total Ash value

Ash: Ash value designates the presence of inorganic salts (of carbonates, phosphates, silicates of sodium, calcium, potassium and magnesium).

After incineration of known quantity of a substance, carbon free ash is obtained (residue left after incineration).

It is helpful in determining quality and purity of a drug.
Instruments required: silica crucible, muffle furnace, desiccator, weighing machine, tongs etc.

Procedure

a. Clean and dry silica crucible was taken.
b. 2-3 gms of sample was taken in silica crucible after tarring it.
c. It was incinerated in muffle furnace at a temperature not exceeding 450°C until carbon free ash was obtained.
d. Silica crucible was removed and placed in desiccator for cooling and weighed.
e. Total ash was calculated.

2. Determination of Moisture content (Loss on Drying)

It is used to determine the amount of volatile matter (i.e., water drying off from the drug).

Instruments used – hot air oven, petri dish, weighing balance, desiccator

Procedure

f. 10 gm of drug was taken after accurately weighing it in a clean, dry and tarred evaporating dish.
g. Petri dish containing vati were placed in a hot air oven at 105°C for 5 hours.
h. After removing from hot air oven it was placed in a desiccator to cool down and weigh.

Constant weight is reached when two consecutive weighing after drying for 30 minutes and cooling for 30 minutes in a desiccator, show not more than 0.01 g difference.

3. Acid insoluble Ash %

Apparatus used: weighing balance, silica crucible, beaker, hot plate, tongs, desiccator, muffle furnace, dropper etc.

Procedure

i. The above formed ash was taken in beaker and boiled with 25 ml of dilute HCl for about 5 min.
j. This solution was filtered through ash less filter paper (Whatman No.41).
k. After filtration, filter paper containing insoluble matter was ignited again in same silica crucible at 450°C. After cooling in desiccator, it was weighed. Constant reading was obtained. Percentage of acid insoluble ash was calculated.

5. OBSERVATION AND RESULTS

Changes in the weight of *Shankha* *(Before and after dagdhikaran)*

	(IN GMS)
Initial weight of *Shankha*(gms)	140
Weight of *Shankha Bhasma*	132
10 gms collected for analytical procedure	
Final Weight of *Shankha Bhasma*	122

Analysis OF *SHANKHA*

Analysis of Shankha Bhasma

Analytical Parameters	**Observation**
Macroscopic description	Conch shell is very hard, conical at each end and bulging in the middle portion. It's colour is white and translucent. The interior is hollow and it has gleaming inner surfaces.
Colour	White
Odour	Non Specific

Table No 33.

Analytical Parameters	Observation and results
LOD%	1.14%
Colour	Grey
Odour	Non Specific
Total Ash value %	97.85%
AIA%	36.33%
Particle size	More than 95% particles passed through sieve no.125
Rekhapurnatva	✓
Varitarava	✓

PREPARATION OF *SHANKHA BHASMA*

Shankha Bhasma Pariksha

(Varitarava) **(Rekhapurnatva)**

DISCUSSION

Authentication of ayurvedic drugs is necessary as there are many drugs which are available in the form of substitute or as adulterant. Hence, authentication was done from Central research laboratory of the institute.

Shankha Bhasma was prepared as per the reference metioned in *Rasachandashu* and then sieved through sieve no 125. It took 1 day for the preparation of each batch *Shankha Bhasma*.

Colour and odour was noted after preparation of *Shankha bhasma*. Colour of *Shankha bhasma* was changed from white to grey due to popping of *Shankha* pieces on *Agni*. There was no significant change in the odour. Total ash value of *Shankha Bhasma* was 97.85%. Moisture content of *Shankha Bhasma* was 1.24%. Acid insoluble ash % of *Shankha Bhasma* was 37.67%. *Rekha Purnavta* and *Varitarava* was observed in prepared *Shankha Bhasma.*

Shankha Bhasma prepared by this method could be used for external application.

CONCLUSION

It can be concluded that Shankha Bhasma, could be prepared by the method mentioned in Rasachandanshu(Dagdhikaran). Bhasma Sidhi lakshanas are noted. This method is much easier, quite affordable and feasible than the other methods mentioned in various texts. *Shankha Bhasma* prepared by this method could be used for external application

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