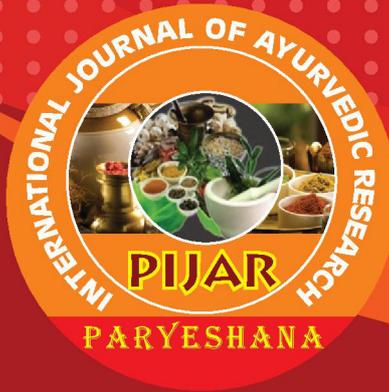


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## "A COMPRATIVE PHARMACEUTICAL AND ANALYTICAL STUDY OF SHANKHA, SHUKTI AND VARATIKA BHASMA"

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### ABSTRACT:

Shankha, Shukti and Varatika are among the Sudha Vargeeya Dravyas are a rich source of calcium. Calcium compounds have a wide range of efficacy in therapeutics. So the present study was aimed at identifying the percentage of calcium (CaO) in this Bhasmas. Shodhana, Marana are done according to Rasatarangani. Then Bhasmas are subjected to qualitative and quantitative analysis. The comparative quantity of calcium was more in Shukti Bhasma and was less in Shankha Bhasma. Acid soluble matter was more in Varatika and less in Shukti. PH value although was higher in all Bhasmas. PH value was higher in Shukti Bhasma and lower in Varatika Bhasma.

**Key Words :** Shankha, Shukti, Varatika, Shodana, Marana.

### INTRODUCTION

Ocean is one of the richest natural resources of minerals like calcium (Ca), phosphorus(P), iron (Fe) and also some trace elements in varied proportions. Shankha, Shukti and Varatika which makes the major part of SudhaVargha have got profound applications in pharmaceuticals. In this study an effort is made to estimate the actual calcium percentage in each of the drug so as to benefit the medical fraternity as a whole.

### AIM AND OBJECTIVE

The present study was aimed to identify the robust percentage of calcium (Ca O) in Shankha, Shukti and Varatika Bhasma. The respective Bhasma were prepared according to the reference of Rasa Tarangini then subjected to organoleptic and chemical analysis.

### MATERIALS AND METHODS

#### Selection of raw materials

Shankha<sup>1</sup>, Shukti<sup>2</sup> and Varatika<sup>3</sup> were taken of the best varieties.

**Shodhana:**

The Shodhana of Shankha<sup>4</sup>, Shukti<sup>5</sup> and Varatika<sup>6</sup> was done as per the reference. (Table 1)

**Procedure:**

All these drugs were subjected to Dola Yantra Shodhana respectively as per mentioned in the classics for 3 hrs in amla kanji as a medium. After that it was washed with water and allowed to dry.

**Marana:**

Incinerations of Shankha<sup>7</sup>, Shukti<sup>8</sup>, Varatika<sup>9</sup> were done according to Rasatarangni.

**Procedure:**

Each Shodhita compound was taken. After weighing they were subjected individually to Bhavana with Kumari Swarasa, 18 Chakrikas were made, and sun dried. This 18 Chakrikas were kept in a Sharava and Sandhi bandhana was made with seven layered mud smeared cloth. Then Gajaputa was administered with Vanyopala, maximum temperature attained was 1000degree celcius, it required 12 hrs to get the combustion done. 4 such procedures were done to each drug.

Comparison of Shodhana process-  
Table.1

Comparison	Shankha	Shukthi	Varatika
Process	Dola Yantra	Dola Yantra	Dola Yantra
Medium	Kanji	Kanji	Kanji

Time	3 hr	3hr	3hr
Weight before Shodhana	500gm	500gm	500gm
Weight after Shodhana	482gm	487gm	490gm
Total loss	18gm	13gm	10gm

Comparison of Marana process-Table.2)

Comparison	Bhavana	Putra	Weight before Marana	Weight after Marana	Total loss
Shankha Bhasma	Kumari Swarasa	4 Gaja puta	482gm	300gm	182gm
Shukti Bhasma	Kumari Swarasa	4 Gaja puta	487gm	307gm	180gm
Varatika Bhasma	Kumari Swarasa	4 Gaja puta	490gm	315gm	175gm

Comparison of Organoleptic character  
Table.3

Parameters	Shankha Bhasma	Shukti Bhasma	Varatika Bhasma
Touch	Soft and Fine	Soft and Fine	Soft and Fine
Colour	Off white	Off white	Off white
Taste	Slight Alkaline	Alkaline	Alkaline
Odor	None specific	None specific	None specific
Rekhapurnatva	Positive	Positive	Positive
Varitaratva	Negative	Negative	Negative
Mridutva	Positive	Positive	Positive
Shlakshnatva	Positive	Positive	Positive

Comparison of Chemical and analytical data-Table.4

Parameters	Shankha Bhasma	Shukti Bhasma	Varatika Bhasma
Ash value	73.922 %	86.185%	88.381%
Ph	8.64%	8.90%	10.44%
Acid soluble matter	99.544	99.364%	99.727%
Calcium as CaO	53.964 %	54.844%	54.984%

## Results

Table 3 & 4 depicts the results of physico chemical analysis carried out for these drugs

## Discussion and conclusion

### Pharmaceutical

After using classical parameters for the identification Shodhana Marana of these drugs the final product ie Bhasma is subjected to Varitara test. But due to the hygroscopic nature of the calcium compound it floats for a very little time (it became negative).

### Analytical :

#### Ash value

Ash content of Shankha Bhasma was 73.922% w/w, Shukthi Bhasma 86.185% w/w, Varitaka Bhasma 88.381 % w/w. It indicates almost whole of the material is converted into incinerated form. Ash value decides whether ignition of the Bhasma is complete or incomplete. Varatika Bhasma provided more ash value compared to other two Bhasmas.

### Ph value :

pH value of 10% w/w solution in water was 8.64 for Shankha Bhasma, 8.90 for Shukti Bhasma and 10.44 for Varitaka Bhasma. In all Bhasma the acid neutralizing capacity (pH value) was higher but especially in varatika Bhasma.

### Acid soluble matter (%):

Acid soluble matter for Shankha was 99.544%w/w, for shukthi 99.364%w/w, for Varatika 99.727%w/w. Acid soluble matter indicates the change in rate of absorption in acid, enzymatic activity and pharmacological activity. The percentage of acid soluble matter is higher in Varitaka Bhasma and lower in Shukti Bhasma.

### Estimation of calcium content :

Calcium is present in all three Bhasmas in the form of oxide (Ca O). In Shankha it is 53.964 %w/w, in Shukti 54.844%w/w, in Varatika 54.984%w/w. The comparative quantity of calcium was more in the case of Varatika Bhasma and less in Shankha Bhasma.

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