

## STANDARDIZATION OF SWARNA BHASMA PREPARED IN THREE DIFFERENT METHODS THROUGH NAMBORI PHASE SPOT TEST (NPST)

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### ABSTRACT

*Swarna* has been used in therapeutics since ages. In *Samhita* when *bhasmikarana* was not properly explained and established they used to heat and quench in milk and used for *pumsavana*. After the establishment of *Ayurveda Rasashastra*, various and genuine methods of *shodhana* and *Marana* were explained. *Swarna bhasma* so prepared will be in the nano form and gives more effect disease conditions and less quantity used. *Ayurveda acharyas* have mentioned various methods of *bhasmikarana*. In the present study Nambori Phase Spot Test is used as an analytical method to standardize *swarna bhasma* prepared by three different methods.

**Keywords:** *Swarna, swarna bhasma, Nambori Phase Spot Test.*

**INTRODUCTION:** *Rasashastra*, the Indian Alchemy deals with standard herbo-mineral preparation which have been tested in every step for its genuinity. The main objective of these formulations or individual *bhasmas* is to give better health to the individual. A very popular quote from our *rasa granthas* states that – *Loha* (any *dhatu*- *Swarnadi*) when made into *bhasma*<sup>1</sup> (nano form), its potency increases and drug absorbtion and assimilation also gets increased<sup>2</sup>. Since the *samhita kaala swarna* is been used in therapeutics, for example In muscular dystrophy<sup>4</sup>, *rasayana*, *pumsavana karma*<sup>5</sup>, *swarna bindu prashana*, etc. It is considered as best *rasayana* and also helpful in nullifying the spread of *visha*.

As it is been used in various forms and is widely used in various diseases and a large number of formulations, it is the need of

the hour to check and confirm its genuinity.

Namburi phased spot test was introduced in 1970 by Dr. Namburi Hanumantha Rao for the analysis of coded *Sindoora* and *Bhasma*. The main aim behind commencing this innovative method is the identification of *Bhasmas* and *Sinuduras* by their specific names as known in *Ayurveda* by virtue of their quality difference and not by their chemical names alone.

This technique is based on the principles of liquid chromatography, which helps for the differential identification of each *Bhasma* from the other *Bhasmas* having same element as the main constituent.

### AIM & OBJECTIVES:

1. To analyze *swarna bhasma* by NPST.

### MATERIALS & METHOD:

Three different *bhasmikarana* procedures were adopted

### Sample 1:

<i>Sh swarna</i>	12 karsha
<i>Sh parada</i>	12 karsha
<i>Sh hingula</i>	12 karsha
<i>Sh gandhaka</i>	12 karsha
<i>Sh manashila</i>	12 karsha
<i>Sh navasadara</i>	12 karsha
<i>Nimbu swarasa</i>	Q.S

Method of preparation: *Sh swarna* & *Sh parada* are triturated with *nimbu swarasa* & made into an amalgam. This is washed and then other ingredients are added .

Finally it is again triturated with *nimbu swarasa* and then *laghuputa* is given. This process is repeated for 8-10times<sup>6</sup>.

### Sample 2:

<i>Sh swarna patra</i>	12 karsha
<i>Sh parada</i>	12 karsha
<i>Sh manashila</i>	12 karsha
<i>Rasasindoora</i>	12 karsha
<i>Swarna makshika bhasma</i>	1 shana (3g)
<i>Nimbu swarasa</i>	Q.S

Method of preparation: *Sh swarna* & *Sh parada* are triturated with *nimbu swarasa* & made into an amalgam. This is washed and then *manashila*, *rasasindoora* and *swarna makshika bhasma* are added.

Finally it is again triturated with *nimbu swarasa* and then *laghuputa* is given. From second *puta swarana makshika bhasma* should be excluded . Total of 8-10putas were given<sup>7</sup>.

### Sample 3:

<i>Sh swarna patra</i>	12 karsha
<i>Sh parada</i>	12 karsha
<i>Sh gandhaka</i>	12 karsha
<i>Nimbu swarasa</i>	Q.S

Method of preparation: *Sh swarna* & *Sh parada* are triturated with *nimbu swarasa* & made into an amalgam. This is washed and then *gandhaka* is added. Fine *kajjali* is prepared. Finally it is again triturated with *nimbu swarasa* and then *puta* is given. From second *puta* only *gandhaka* is added . total of 14putas were given<sup>8</sup>. These prepared *swarna bhasma* were procured and the analysis was carried out.

### NAMBURI PHASE SPOT TEST<sup>9</sup>:

**Procedure:** Whatman paper No.1 should be impregnated with 10% potassium iodide, 10% potassium bromide, potassium ferrocynide and haridra paper seperately and dried carefully on a clean glass sheet. About 0.25 gm of 3 samples of *swarna bhasma* should be taken in a test tube and aquaragia is added. The solution is allowed

to settle down for 48 hours shaking vigorously at frequent intervals. A drop of this suppressant solution should be carefully put with the help of dropper on the impregnated whatman paper. As the drop comes in contact with the paper an instantaneous characteristic spot begins to develop and changes with the time. The change of colours and the pattern of the spot at 3 different phases at 3 different time intervals i.e., 0 minutes, 5 minutes 20 minutes are to be recorded.

### RESULTS:

Observations were done for 4phases-

1. 1<sup>st</sup> phase- immediately after putting of the drop
2. 2<sup>nd</sup> phase- after 5minutes
3. 3<sup>rd</sup> phase- after 20minutes
4. 4<sup>th</sup> phase-after 1hour.

### The following table will show the changes seen during each phase: Sample 1:

Sl.No	Paper name	Inference
1	Potassium bromide	Periphery : Orange ring circle Centre : fading orange -yellow

2	Potassium ferrocynide	Periphery : Dark brown circle Centre: White ring formed in first 2 phases disappeared. centre faded
3	Potassium iodide	Periphery : dark yellow Centre : light yellow
4	<i>Haridra</i> paper	Periphery : Brown ring Centre : Faded brown

**Sample 2:**

Sl.No	Paper name	Inference
1	Potassium bromide	Periphery : Orange ring outer Centre : Orange ring inner & few spots
2	Potassium ferrocynide	Periphery : Dark brown circle Centre : white patches with some spots
3	Potassium iodide	Periphery : light blue uneven ring Centre : dark blue
4	<i>Haridra</i> paper	Periphery : Brown ring Centre : fading brown

**Sample 3:**

Sl.No	Paper name	Inference
1	Potassium bromide	Periphery : dark Orange ring Centre : light orange
2	Potassium ferrocynide	Periphery : Dark brown circle Centre : faded brown
3	Potassium iodide	Periphery & Centre : orange spot
4	<i>Haridra</i> paper	Periphery : dark brown Centre :light brown

**DISCUSSION:**

*Swarna bhasma* was prepared by following the *marana* procedures explained respectively. First and second sample showed *bhasma siddhi lakshan*s in 10putas and third sample was completed after 14<sup>th</sup> *puta*.

In Namburi Phased Spot test sensitivity of reactions at different time intervals is measured unlike the chromatography of chemistry.

The continual chemical reactions taking place gradually between 2 chemical substances on static media at fraction of second are easily detected by their distinct colour changes the pattern of spot which is specific to each rasa formulation, as the standard.

In the 1<sup>st</sup> and 3<sup>rd</sup> samples the spots in each paper was almost same confirming the presence of *swarna* but 3<sup>rd</sup> sample was more intense. 2<sup>nd</sup> sample showed blue spots showing the presence of copper and

iron(*swarna makshika bhasma*). It can be inferred that all the three samples has the presence of *swarna*. As the ingredient of preparation differs, the color spots also differed. NPST is a very basic analytical procedure that can be performed in department with very less equipments but this gives a genuine information about ingredients in the formulation and *bhasmas*.

**CONCLUSION:**

From the above discussion it can be concluded that sample 1 & 3 were prepared with *rasabhasma* and that was confirmed with orange border and white faded ring on potassium bromide paper. In the second sample showed blue inner ring and faded outer ring depicting the presence of copper and iron (*swarnamakshika bhasma*) in it.

NPST is the very basic analysis for standardization which is feasible as well as can be done with basic lab equipments. So

by the results given by the test we can conclude that sample 3 contains more percentage of *swarna* compared to the other two. To confirm this further XRD,XRF studies can be carried out and exact percentage can be noted.

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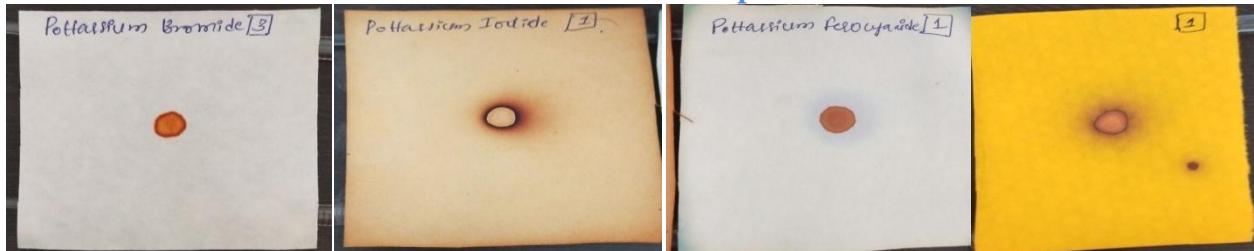
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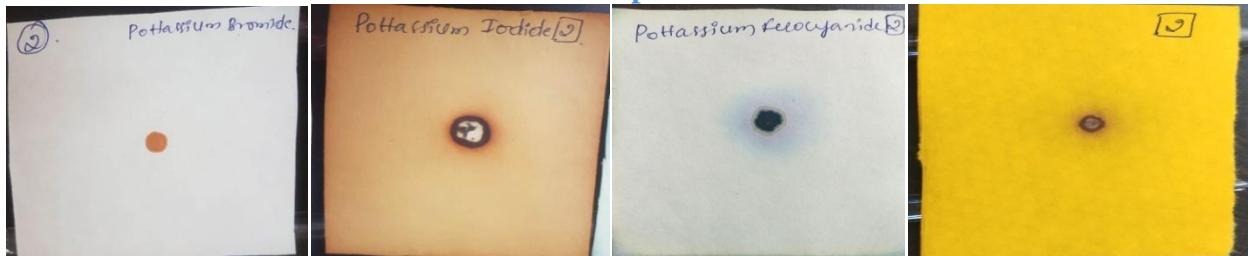
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#### PHOTOS: Sample 1



#### Sample 2



#### Sample 3

