



**PHARMACEUTICAL ANALYSIS OF ABHRAKA SHODHANA BY NIRVAPA IN  
GODUGDHA AND GOMUTRA**

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## INTRODUCTION

*Rasa Shastra* is the alchemy of Ayurveda where we find the use of metals and mineral compounds in treatment of diseases evidentially. It is the divine science which teaches to convert even *Visha* into edible medicine by the process of *Shodhana*, which improves the strength of the body or cure a disease.

Now a day, the predictable bearers of the society have started calculation the conducts of our antiquated science of *Rasa Shastra*. We are standing by the fact that *Rasa Shastra* exhibits itself as *deha vada* and *loha vada*.<sup>[1]</sup> The later was successfully attained in the past by the intellect of our *Acharya*, concurrently as the years elapsed; *lohavada* was all the more unintelligible and baffling causing the *dehavada* to flourish enjoying much attention and a polite welcome from all the attributes.

The *Acharya* with their profound knowledge of science classified the mineral compounds and the metals into different categories and sub categories. *Abhraka* which is classified under *maharesha* by various *Acharya* is a substance capable of pacifying all 3 *doshas* of the body and could rejuvenate<sup>[2]</sup> the body but only in its edible form and thus conversion of *Abhraka* to its edible form is done by the process of *Nirvapan* (heating and dipping) and this process of conversion is considered as purification process (*Shodhana*). The media used in the process of *Shodhana* has very important role in either breaking down or finishing the chemical constituent that is not required. Every treatment of a drug in any particular media for a particular extent has a role in the modification of the characters.

### Need for Study

Though *Abhraka* is widely used in practice and is given such an importance in the classics and even texts nowadays, till date no standard procedure of its *Shodhana*, which is considered as the primary step of processing of the *Abhraka* is documented.

This study is done to evaluate the effect of *Shodhana* on *Abhraka* with different media.

### Hypothesis

**Null Hypothesis:** There is no difference in *Abhraka*, purified by different media.

**Alternate Hypothesis:** There is difference in *Abhraka*, purified by different media.

### AIMS AND OBJECTIVES

- 1) To carry out *Abhraka Shodhana* by *Nirvap* (heating and quenching) in *Godugdha* and *Gomutra*.
- 2) To analyze all the samples of media and *Abhraka* – before and after *Shodhana*.

### Pharmaceutical Study<sup>[3]</sup>

Details of the processing of *Abhraka Shodhana* by various *nirvap* media in different batches along with pharmaceutical observations like duration, specific findings, and yield obtained after the process etc. was recorded.

Principle: *Nirvapa* (Heating and Quenching).

1. 7 times *Nirvapa* in *Gomutra* (Cow urine).
  2. 7 times *Nirvapa* in *Godugdha* (cow milk).
- Site of procurement: Market and Pharmacy of Parul Institute of Ayurved.
  - Site of Commencement: *Rasa Shastra & Bhaishajya Kalpana* Laboratory, Parul Institute of Ayurved.
  - Time required: 8 days.

### Apparatus required

1. Heat source
2. An iron pan
3. Two stainless steel vessels
4. A pair of tongs
5. A Measuring cylinder
6. Weighing machine
7. Tissue paper / blotting paper

8. Clean cotton cloth.  
Principle: *Nirvap*.

## METHODOLOGY

### Method 1<sup>[4]</sup>

Ingredients:

<i>Ashuddha Abhrakachurna</i>	In g
<i>Godugdh</i>	In ml
<i>Water</i>	In ml

#### Procedure

150 g of raw *Abhraka* was weighed and heated in an iron pan. 2l of milk was taken in a steel vessel with the help measuring jar. The temperature of stove was maintained at full. The pieces of *Abhraka* were flipped with the help

of tongs for equal exposure of heat. It took 5 hours to achieve the red hot stage.

When the *Abhraka* pieces became totally red hot they were quenched in the milk and left for 4 to 5 minutes. Later the milk was separated by filtering it through cotton cloth and collected for drying.

Residual quantity of milk was measured. Temperature of iron vessel and *Abhraka* were noted by using pyrometer. The similar method was followed for further six times for all the three batches. For every *nirvapa*, fresh milk was taken. After 7th *Nirvapa*, *Shodhita Abhraka* was taken in stainless steel tray and spread it well. Tray was kept in an oven at 500°C for 8 hours to evaporate the water which is absorbed by *Abhraka* during the *Shodhana*.

The results and observations of this method of *shodhana* is as follows:

Nirvapa	Weight of Raw abhraka (in gm)	Cow milk (in l)	Duration to attained red hot (in minutes)	Milk remaining after quenching (in l)	Weight loss (in g)
1 <sup>st</sup>	150	2	300	1.5	9
2 <sup>nd</sup>	141	2	60	1.6	3
3 <sup>rd</sup>	138	2	60	1.5	2
4 <sup>th</sup>	136	2	30	1.5	4
5 <sup>th</sup>	132	2	60	1.3	3
6 <sup>th</sup>	129	2	60	1.5	3
7 <sup>th</sup>	126	2	60	1.5	2
Final	124	2×7	630	1.4	26

Nirvapa	Highest temperature of iron pan (in °C)	Highest temperature of abhraka(°C)	Initial temperature of milk(°C)	Temperature of milk after quenching (°C)
1 <sup>st</sup>	946	846	28	78
2 <sup>nd</sup>	950	846	29	76
3 <sup>rd</sup>	857	850	28	78
4 <sup>th</sup>	850	900	29	78
5 <sup>th</sup>	940	800	29	76
6 <sup>th</sup>	950	830	28	78

### Method 2<sup>[5]</sup>

Ingredients:

<i>AshuddhaAbhrakachurna</i>	In g
<i>Gomutra</i>	In ml
<i>Water</i>	In ml

#### Procedure

150 g of raw *Abhraka* was weighed and heated in an iron pan. 2l of cow urine was taken in a steel vessel with the help measuring jar. The temperature of stove was maintained at full. The pieces of *Abhraka* were flipped with the help of tongs for equal exposure of heat. It took 5 hours to achieve the red hot stage.

Later the milk was separated by filtering it through cotton cloth and collected for drying.

Residual quantity of urine was measured. Temperature of iron vessel and *abhraka* were noted by using pyrometer. The similar method was followed for further six times for all the three batches. For every *nirvapa*, fresh urine was taken. After 7th *Nirvapa*, *Shodhita Abhraka* was taken in stainless steel tray and spread it well. Tray was kept in an oven at 500°C for 8 hours to evaporate the water which is absorbed by *abhraka* during the *shodhana*.

When the *Abhraka* pieces became totally red hot they were quenched in the milk and left for 4 to 5 minutes.

The results and observations of this method of *shodhana* is as follows:

#### BATCH B1

Nirvapa	Weight of Raw Abhraka (in gm)	Cow Urine (in l)	Duration to attained red hot (in minutes)	Cow Urine remaining after quenching (in l)	Weight loss (in g)
1 <sup>st</sup>	150	2	400	1.5	6
2 <sup>nd</sup>	144	2	60	1.3	5
3 <sup>rd</sup>	139	2	50	1.7	4
4 <sup>th</sup>	135	2	30	1.2	2
5 <sup>th</sup>	133	2	60	1.3	6
6 <sup>th</sup>	126	2	20	1.4	3
7 <sup>th</sup>	123	2	40	1.3	2
Final	122	2×7	660	1.38	28

Nirvap	Iron pan/Kadhai (0C) after heating	Abhraka(0C)	Initial temp of Urine	Urine After quenching temp of Urine
1.	950	846	28	78
2.	947	830	27	76
3.	857	850	28	77
4.	840	900	27	78
5.	940	850	28	78
6.	930	830	28	76
7.	940	838	29	78
Avg	914.85	849.14	27.85	77.28

#### OBSERVATIONS OF PHARMACEUTICAL STUDY

##### Method 1: Observations

- Hissing sound occurs with emergence of vapours on rapid quenching of red hot *Abhraka*.
- The temperature of milk increased more than 40°C on every quenching.
- The milk turned brownish from white, with dust of *Abhraka*.
- On every successive *nirvapa*, the *Abhraka* became softer and the layers became more separable.
- From 4th *nirvapa*, the *Abhraka* became lighter and started to fly as dust on heating.
- Typical milk smell was observed on heating *Abhraka*.
- The particle became too soft and developed golden colour from 3<sup>rd</sup> *nirvapa* and the final product acquired colour of *Vimala*.

##### Method 2: Observations

- Hissing sound occurs with emergence of vapours on rapid quenching of red hot *Abhraka*.
- The temperature of Urine increased more than 40°C on every quenching.
- The Urine turned dark brownish green, with dust of *Abhraka*.
- On every successive *nirvapa*, the *abhraka* became softer and the layers became more separable.
- From 4th *Nirvapa*, the *Abhraka* became lighter and started to fly as dust on heating.
- Typical Urine smell was observed on heating *Abhraka*.

- The particle became too soft and developed golden colour from 3<sup>rd</sup> *nirvapa*.

#### DISCUSSION ON PHARMACEUTICAL STUDY

*Shodhana* is the process of purification done for metallic, mineral and toxic compounds to remove impurities and make them therapeutically effective. The media used for *shodhana* helps the drug to reach the target organ. The *shodhana* of *abhraka* was done in 4 methods described in *Rasaratna Samuchchaya* and the details are as follows:

A bulk of 3kg of abhraka was procured for the process.

##### Method 1

It was done by heating 150g of *abhraka*, till it becomes red hot and quenching it in 2l of cow's milk. The process was repeated another 6 times and done in 3 batches. An average of 80.44% *shuddha abhraka* was obtained out of 150g taken for purification.

##### Method 2

It was done similar to method 1, substituting ksheera with *go-mutra*. An average 79.77% of *shuddha abhraka* was obtained out of 150g taken for purification.

#### CONCLUSION

The alternate hypothesis is accepted as there is substantial difference in *abhraka* obtained after all different methods of *shodhana* by the recordings of pharmaceutical and analytical study.

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