

ANALYTICAL STUDY OF SHODHITA HARITALA AND HARITALA BHASMA

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ABSTRACT

Haritala, claimed to contain 61% Arsenic in its raw form, which is toxic in property. It is used in many disorders for its therapeutically values only after *shodhana* and *marana*. *ShodhitaHaritala* and *HaritalBhasma* were prepared by classical methods. To provide scientific data and standards for standardization *ShodhitaHaritala* and *HaritalBhasma* were subjected to analysis. In analytical study As, S, Fe, Co., were detected in all the three samples. Ni was only in *Harital Bhasma* sample.

KEYWORDS: *Shodhita Haritala, Haritala bhasma, Raw Haritala, Arsenic Trisulphide*

INTRODUCTION

Haritala is one of the mineral drugs considered in uparasa and its Shodhana and Marana processes are also described in many classical Rasagranthas like Rasaratnasamucchaya, Rasa Tarangini, Rasendra Sara Sangraha etc. Haritala is one of the arsenic compounds and considered to be a poisonous drug¹. With proper process poison can be converted into an excellent medicine. If improper procedure is used it becomes severe poison². But Haritala if used after Shodhana and Marana it is beneficial in diseases like Kushtha, Vishamajwara, Shwasa, Kasa etc. and it is also Vrishya.

Arsenic is rapidly absorbed by the human gastrointestinal tract and arsenic undergoes substantial metabolism. Chronic arsenic poisoning may be observed due to intake of low doses over months leading to scaling and pigmentation of skin, drowsiness, poor memory, irrational speech, delirium and anaemia has also been noted in some

cases. As it is carcinogenic in humans, skin cancer may be caused by dermal contact and by oral intake.³

Analysis of *ShodhitaHaritala* and *HaritalaBhasma* will provide scientific data for the presence of arsenic in permissible amount to the body and elements present in both *shodhitaHaritala* and *Haritalabhasma*.

As it is arsenic compound it is better to analyze arsenic percentage in *shodhitaHaritala* and *Haritalabhasma* in order to minimize its adverse effects and to claim safety, a scientific study was required. So an attempt was made with this project on “Analytical study of *shodhitaHaritala* and *Haritalabhasma*.”

OBJECTIVES OF THE STUDY

To assess the percentage of arsenic and other elements present in Raw *Haritala*, *Shodhita Haritala* and *Haritala Bhasma*.

MATERIALS AND METHODS

Sudhajala Preparation⁴:

Materials:

- 1) Sudha - 50 gms
- 2) Jala - 10 Lits

Equipments: Mud Pot, Cloth, Stirrer etc.



Method:

SudhaChurna was taken about 50gms and mixed with 10lits of pure water in a Pot and kept for 12 hours, then mixed well with stirrer, filtered and collected.

HARITALA SHODHANA:

Materials:

- 1. Patra Haritala - 1kg 20 gms
- 2. SudhaJala. - 5litres

Equipments: KhalvaYantra, Mud Pot, Cloth, Stove, Spoon etc.

Method of Haritala Shodhana⁵:

Small Pieces of Patra Haritala was taken and Potaliwas prepared by using clothand subjected to swedana in Dolayantra containing sudhajala for 6 hours. Then washed and collected.



Observation:

- 1) Froth was observed during Swedana Process
- 2) Irritant gas was liberated during swedana
- 3) After the process ShodhitaHaritala weight was 1kg 10gms.
- 4) During Shodhana process Sudhajala turns into slight greenish yellow color.
- 5) After shodhana Shining of Haritala was reduced.

Precautions:

- 1) One should wear mask during swedana.
- 2) Whenever froth gets increased it has to be removed.

MARANA OF HARITALA⁶:

Ingredients:

- ShodhitaHaritala - 690 gms
- PalashaMoolaKwata - 500ml
- MahishaMootra - 500ml

Equipments: Khalvayantra, Sharava, Cloth, Gopichandan, Cowdungs, Spoon, Plate.

Preparation of PalashaMoolaKwatha:

PalashamoolaYavakuta churna was taken 1 part and mixed with 16 part of water Soaked at night and boiled on mandagni and reduced to 1/8 and again boiled to get MadhuSamanaKwata of PalashaMoola .

Collection of MahishaMootra:



Fresh mahishamootra was collected locally for every fourth bhavana in each puta.

HARITALA BHASMA NIRMANA:

Purified Haritala churna was subjected to 3 Bhavanas of palashamoola kwata then one Bhavana with Mahisha Mootra was given. Then Chakrikas were prepared, dried, placed in sharava & Sealed and dried. Then Samputa was kept inside the 15 cowdungs and heat was given. Like this process was repeated for 12 times to get proper Haritalabhasma.



OBSERVATION, RESULTS

Table No: 1) Physical constituents of Shodhita Haritala and Haritala Bhasma⁷

Sl. No	Physical constituents	Shodhita Haritala	Haritala Bhasma
1	% of Total ash	9%	37.00%
2	% of Acid insoluble ash	40%	20%
3	% of Water insoluble ash	2%	9%
4	pH	5.85	6.12
5	Specific Gravity	0.95%	0.96%
6	Moisture content	0.1%	0.5 %

Shodhita Haritala and Haritalabhasma were subjected to Organoleptic, physical and chemical analysis.

Organoleptic & physical analysis:

Haritalabhasma shown odorless amorphous to touch and astringent property, appears as powder form and whitish in colour.

Shodhita Haritala and Haritalabhasma were subjected to pH study, pH of SH and HB were 5.85 and 6.12 respectively. Acidic and alkaline neutralizing activity of SH and HB sample were conducted in different pH media of acidic pH = 3.2 alkaline pH = 7.4 and 9.2. It was noted from 0 hours to 12 hours at the interval of every 1 hour that gradual decrease of pH of 9.2 and 7.4 While increase was noted with pH 3.2 solution both in SH & HB. As SH and HB were having ushnaveerya and kashaya rasa might have contributed for this change.

Test for physical constants of both samples were carried out SH ash value (9%) acid insoluble ash (40%) water insoluble ash (2%) Specific Gravity (0.95%) and moisture content (0.1%) and HB ash value (37%) and

insoluble ash (20%) water insoluble ash (9%) Specific Gravity (0.96%) and moisture content (0.5%)

SH and HB samples were subjected to solubility SH was insoluble in Benzene chloroform carbon tetra chloride xylene DW and sparingly soluble in acetone ethyl alcohol methanol toluene and Haritalabhasma was insoluble in DW benzene chloroform CCl₄ toluene and sparingly soluble in acetone, ethyl alcohol, methanol, xylene.

Chemical analysis

Analytical reports of samples were obtained by using inductively coupled plasma atomic emission spectroscopy.

AS, S, Fe and Co were detected in all the samples Ni was detected only in HB sample. 0.55% of As was increased in ShodhitaHaritala (36.60%) compared with Raw Haritala (36.05%) and 16.73% of As was decreased in HB(19.32%) than RH.

Sulphur (S) is decreased in both SH(34.94%) and HB(22.17%) than RH due to swedana and incineration process respectively.

Fe, Co, were increased in ShodhitaHaritala and decreased in HaritalaBhasma than Raw Haritala.

Particle size assessment by ICPAES (Inductively Coupled Plasma Atomic Emission Spectroscopy) method was done at IIT powai, Mumbai .The mean particle size value of HB after 1st puta 2.85µm, 4th puta 2.24µm, 8th puta2.37µm and after12th puta 2.28µm.Minimum particle size values of HB after 1st ,4th ,8th& 12th puta was 0.96µm.Maximum particle size values were decreased in1st puta 24.78µm, 4th puta 23.45µm, 8th puta10.21µm and 12th puta

9.63µm respectively due to more bhavana and puta.

DISCUSSION

The percentage of Total ash in shuddharitala was 9% and in Haritalabhasma it was 37% which was due to incineration process carried.

AS, S, Fe and Co were detected in all the samples Ni was detected only in HB sample. it may be due to churnodaka used in shodhana process and As was decreased in HB than RH due to incineration process.

Sulphur (S) is decreased in both SHand HB than RH due to swedana and incineration process respectively.

Fe, Co were increased in ShodhitaHaritala due to the presence of Sudhajala and due to incineration process during puta the same were decreased in Haritalabhasma.

CONCLUSION

1). As, S, Fe, and Co were detected in all the samples (Raw Haritala, Shodhita Haritala, Haritala Bhasma) but Ni was detected only in Haritala Bhasma.

2). 0.55% of As was increased in Shodhita Haritala compared to Raw Haritala and 16.73% of As was decreased in Haritala Bhasma compared to Raw Haritala.

3). Sulphur was decreased in both the samples compared to Raw Haritala

4). Fe, Co, were increased in Shodhita Haritala and decreased in Haritala Bhasma

5) 12 putas are recommended to minimize and to get body permissible amount of As and other components &also to obtain micro fine form of Haritala bhasma.

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