

Cost effective method of standardisation - n.p.s.t for bhasma of sudha group

Krantikumar D. Amaley¹, Amit M. Naphade²

¹ Asst. Prof. & H.O.D. Dept. of Agadtantra & Vyavahar Ayurved, Vidarbha Ayurved Mahavidyalaya, Amravati, Maharashtra, India; ² Medical Officer, Ayurveda Wellness Centre, Central Govt. Health Scheme, Nagpur, Maharashtra, India

ABSTRACT:

In Ayurveda, Sudhavarga has lot of therapeutic importance. Praval, Varatika, Shankha, Shukti, Mukta etc. are of marine origin & hence taken in one “Sudha” group. When these shells are made into bhasma they are chemically identified as oxides / carbonates of calcium. In Ayurveda, this kind of identification of bhasma is termed as “Differential identification”. The study of such differential identification is made possible by the present modern analytical technique N.P.S.T. Four sudhavarga substances which are chemically identical with each other viz. Praval Bhasma, Mukta Bhasma, Shankha Bhasma and Kapardika Bhasma are studied by Namburi Phased Spot Test Along With Organoleptic Properties. The main composition of Sudhavarga is Calcium Carbonate, which is an essential mineral for the body physiology. Due to commercialization, there may be chances of adulteration or to provide spurious bhasma. Hence to identify this bhasma easily, N.P.S.T. is very much sensitive and also cost effective method. N.P.S.T. is pioneer technique in the field of standardisation.

KEYWORDS: Sudhavarga, Calcium Carbonate, Identification, Namburi Phased Spot Test (N.P.S.T.), Standardisation, Bhasma, Sensitive, Cost effective.

INTRODUCTION

Pravala(Corals), Varatika(Cowrie Shell), Shankha (Conch Shell), Shukti(Pearl Oyster Shell), Mukta (Pearl) are of marine origin & hence taken as one group. When these shells are made into bhasma they are chemically identified as oxides / carbonates of calcium as the case may be.

Once the Shells, Corals & Pearls are made into bhasma ordinary chemical analysis cannot reveal which bhasma is originated from Shell, Coral (Pravata) and Pearl (Mukta) etc.

This kind of identification of bhasmas by their individual names as known in ayurved is termed as “Differen-

tial identification”. The study of such differential identification is made possible by the present N.P.S.T.

On the basis of the above concept we chosen the following four sudhavarga substances which are chemically identical with each other viz. Praval Bhasma, Mukta Bhasma, Shankha Bhasma and Kapardika Bhasma. Where the conventional modern chemical analysis appears to be inadequate to identify them by their name known in Rasa Shastra.

AIMS & OBJECTIVES

1. Identification of Bhasma of Sudhavarga easily by very sensitive & cost effective NPST Technique.
2. Identification of adulterated & spurious bhasma of Sudhavarga which may cause harm to body.

METHODS & MATERIALS

Method:- Namburi Phased Spot Test & along with organoleptic (Susceptible to sensory organs) properties are studied.

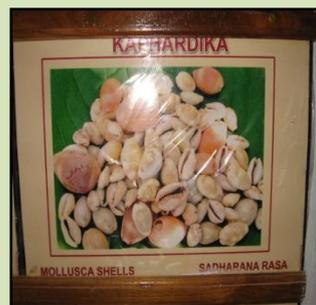
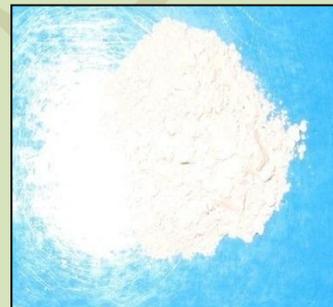
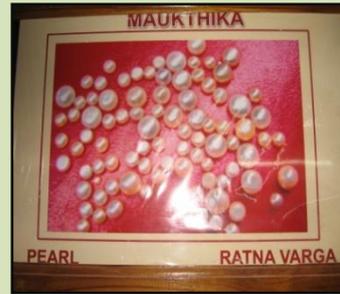
Material:-

1. Samples of Bhasmas
2. Ignition / Micro Test Tubes
3. Distilled Water
4. Test Tube Holder
5. Dropper
6. Spirit Lamp
7. Haridra Papers

(Whatman paper No:1 impregnated & dried in an alcoholic extract of Curcuma Longa Linn.)

Procedure:-

Take 0.25 gm of Bhasma into a micro test tube & heat it on spirit lamp till the tip of the lower end of the test tube becomes red hot. While heating the bhasma note carefully the smell. Stop heating the sample as & when charred smell is felt. Allow the test tube to cool. Add 0.5 ml of water to these heated samples, shake them well & allow to settle



OBSERVATIONS DURING ABOVE PROCEDURE

ORGANOLEPTIC PROPERTIES

(Organoleptic = Susceptible to sensory organs)

Criteria	Pravala Bhasma	Mukta Bhasma	Shankha Bhasm	Varatika Bhasm
Smell on heating	Nil	Charred smell	Nil	Nil
Setting time of the sediment	5 Minutes	Not less than one hour	5 Minutes	5 Minutes
Clarity of the solution	Colourless	Straw Coloured (Pale – Yellow)	Colourless	Colourless

Haridra Paper Preparation:-

50 gms of crushed Haridra i.e. Curcuma Longa (Mother Tuber) is allowed to infuse for 48 hrs in 100 ml alcohol and decanted, the whatman paper is impregnated with this infusion & dried under shade

OBSERVATIONS ON HARIDRA PAPER:

Put 2 – 3 drops one over the other taken from the clear solutions of each sample on “ Haridra Paper” & observe the formations of the pattern and colour of the spot.

Immediate Pink coloured spots will appear with specific patterns.

Bhasma	Pravala Bh.	Mukta Bh.	Shankha Bh.	Kapardika Bh.
Colour of the spot	Pink	Pink	Pink	Pink
Periphery of the spot	Wet periphery forms which fades away by the beginning of 3 rd phase	Wet spot forms over which thin pink circle forms -the wet spot fade away by 1hr after the 1 st phase	No wet periphery	Narrow wet periphery
Pattern of the spot	Solid spot form	Pink colour thick line circle in the centre of the wet spot	Solid spot	solid
Fading	Starts by the end of 1 hr after the 1 st phase - 50% of the colour fades away 24 hrs after the 1 st phase	Fades away by 2-3 hrs after the 1 st phase or even earlier	Fade away starts after 24 hrs of the 1 st phase	



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Bhasma Name	1 st phase	2 nd phase	3 rd phase
Pravala Bhasma	A solid deep purple <u>spot</u> forms. Immediately a more deep purple margin appears with a <u>wet periphery</u> around it.	The wet periphery around the purple spot begins to fade away without turning into purple further	The entire spot begins to fade away.
Mukta Bhasma	A wide wet spot forms followed by a purple circle in the centre of the spot.	The central purple circle begins to fade away.	
Shankha Bhasma	A deep purple <u>solid</u> spot forms	By the end of the 1st phase a more deep purple margin forms with wet periphery around it & continues to be the same except the central space which become light brown mixed with purple shade.	From the start of the 3 rd phase it begins to fade away.
Varatika Bhasma	In the 1st phase a deep purple solid spot forms followed by a more deep purple margin by the end of 1st phase. In this spot no wet periphery forms.		

Why Cost Effective:-

The material required are very cheap & easily available.

There is no need for separated laboratory for N.P.S.T.

The total cost to identify the sudha-group Bhasmas by NPST will be approximately Rs. 200.00.

Required Material**Cost**

1. 4 Test Tube	-	Rs. 32.00
2. Whatman Paper No.1-		Rs. 16.00

3. Glass Frame - Rs. 50.00
4. Spirit Lamp - Rs. 30.00
5. Distilled Water - Rs. 15.00
6. Other - Rs. 60.00

Hence we can say that N.P.S.T. is economical & sensitive test for identification of Bhasmas.

CONCLUSION

In ayurvediya Rasa Shastra Sudha varga has lot of therapeutic importance. The main composition of which is calcium carbonate, which is an essential mineral for the body physiology. Due to the commercialization there may be chances of adulteration or to provide spurious bhasmas. To identify these bhasma easily N.P.S.T. is very much sensitive also cost effective method. N.P.S.T. is pioneer technique in the field of standardization.

REFERENCES

1. Namburi Hanumantharao, N.P.S.T., CCRAS, New Delhi.
2. Pandit Ramprasad Vaidyopadhyaya, Rasendra Purana, Khemraj Shrikrishnadas Publication, Mumbai, 2000, pp 395
3. Tan L., Tay T.S., Khairoman S.K. and Low Y.C., Identification of an imitation pearl by FTIR, EDXRF and SEM, Journal of Gemnology, 29(5/6),2005, 316-324
4. Sharma Sadanand, Rasataringini, Motilal Banarsidas Publication Delhi, 11th ed. 1979, Reprint 2000, Tarang 23/67, pp 612
5. Sharma Sadanand, Rasataringini, Motilal Banarsidas Publication Delhi, 11th ed. 1979, Reprint 2000, Tarang 23/71, pp 613
6. CCRAS, Ministry of Health and F.W. Govt. of India, New Delhi, Application of Standerdised Namburi Phased Spot Test In Identification of Bhasma and Sindura Preparations of Ayurveda, pp 53
7. CCRAS, Ministry of Health and F.W. Govt. of India, New Delhi, Application of Standerdised Namburi Phased Spot Test In Identification of Bhasma and Sindura Preparations of Ayurveda, pp 64-65
8. Poornima B.T., Santosh B., Jadar P.G., Evaluation of Market Samples of Mukta Bhasma using NPST, Indian Drugs 49(11), Nov.2012