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AN PHARMACEUTICO-ANALYTICAL STUDY OF MAYURPICHHA BHASMA – A REVIEW STUDY

DR MANOJ KUMAR KAUSHAL

Professor, Department of Rasa Shastra & Bhaishajya Kalpana, Bapu Ayurvedic Medical College evam Hospital Ladanpur Kopaganj Mau. U.P.

Corresponding Author - Dr Manoj Kumar Kaushal, Professor, Department of Rasa Shastra & Bhaishajya Kalpana, Bapu Ayurvedic Medical College evam Hospital Ladanpur Kopaganj Mau.U.P.

ABSTRACT

Ayurvedic animal medicine made from peacock feathers is known as Mayura piccha Bhasma (Calx of peacock feather). It is mostly used to treat respiratory disorders, hiccough, and vomiting. It is a copper compound. In this investigation, Mayura piccha Bhasma was produced using the traditional method outlined in Rasa Tarangini. The current study's objectives are to assess the temperature at which both Bijavarta and Shuddhavarta characteristics appear, as well as to investigate the temperature at which Bhasma may be extracted from Mayura Piccha. It had a metallic aspect (bright, glossy, and lustrous) and was a greyish brown colour. Mayur Piccha Bhasma produced a total yield of 5%. To determine the ash value, pH value, specific gravity, moisture content, preliminary organic analysis, gravimetric analysis, chemical components, and to establish the pharmacopoeia standards for standardizing Mayura Piccha Bhasma, the produced Bhasma were submitted to different Physico-chemical tests.

KEYWORDS – Mayur Piccha Bhasma, Physico-chemical Analysis, Samhita's, etc.

INTRODUCTION

Ayurvedic animal medicine made from peacock feathers is known as Mayura Piccha bhasma (Calx of peacock feather). diverse metals, minerals, animals' origins, valuable and semiprecious stones, etc. are included in Rasashastra, along with their diverse characteristics and healing powers. uses. Among them, Mayur Piccha is a significant substance of animal origin that is utilised as medicine and for parada samskara in the form of Mayura Piccha bhasma. It is covered in the Mayura piccha and tamra portion of Rasa literature. Under Jantava dravaya (Animal origin), it is mentioned. Shodhana (Purification), Marana (Incineration), Satvapatan (Extraction of Metal from Mineral), and other pharmaceutical processes transform lethal poisonous metallic and mineral compounds into effective and safe medicinal agents. A crucial procedure that comes into play following.[2]

Therefore, various trace elements are introduced, and during the Shodhana method, molecular changes in the specific medicine have been observed. Using Dravaka Gana and intense heating in a Koshthi (specially designed Fired area), it is possible to extract the metallic component from minerals, ore, and compounds. Any mineral component, animal by-product, or ore is combined and rubbed with the medications recommended in Kshara varga, Amla varga, and Dravaka varga, claims Rasaratna Samuchhaya. After that, it is heated rapidly in a kosthi (furnace) while being held within a covered crucible. This allows one to get the compound's metallic essence, which is nothing more than Bhasma. (R.R.S. 8/34).

Eight Doshas of Tamra have been referenced in traditional Rasashastra texts. Regarding Sasyaka, mayura piccha, Rasatarangini and Rasaratnasamucchya have been stated in the context of Tamra. Their Bhasma may be tapped on for Tamra. Rasacharya does not specify the duration of heating, the number of heating sessions, the amount of fuel used, or the temperature in Satvapatana. This omission may be due to drug-related fluctuations, however while observing Satvapatna, specific characteristics—namely, Bijavarta and Suddhavarta—are explicitly noted as indicators of acquiring Bhasma. Tuttha is tested for medu Bhasma in the current investigation. the temperature at which Tuttha imparts the qualities of Bijavarta and Shuddhavarta, and the temperature at which Bhasma is obtained from Tuttha.

Classical writings like the Bhaishajya Samhita and the Siddhayog Sangraha cover the preparation of Mayurpiccha Bhasma in detail.4 According to the Bhaishajya Samhita, it is created by presenting four Gajaputa, and the Siddhayog Sangraha, it is created by igniting peacock feathers over a ghee flame. This is an effort to create Mayurpiccha Bhasma using the Siddhayog Sangraha procedure and test it against its physico-chemical requirements.[5]

AIM & OBJECTIVES

- analysing the physico-chemical elements of Mayrapuccha Bhasma (Calx of peacock feather), which is made using the ghee flame technique and the gajapua method (burning the peacock feathers at a temperature of roughly 1000°C using 1,000 cakes of cow dung).
- establishing the pharmacopeial requirements for the evaluation of Mayrapuccha Bhasma's (Calx of peacock feathers) standard characteristics.

METHODOLOGY

- Mayurpiccha Bhasma preparation
- Mayurpiccha Bhasma Physico-Chemical Analysis

COLLECTION OF DATA

The raw material was validated by experts from Rasa Shastra & Bhaishajya Kalpana department. Peacock feathers and ghee were bought from a nearby market.

METHOD OF PREPARATION

- Peacock feathers were burned over a ghee flame using the ghee flame method, and the ash that resulted from this process was then ground into a black powder using a khalva yantra (mortar and pestle). After that, the powder was gathered and stored in an airtight glass container.
- Using a thousand cakes of cow dung, the Gajapua Method (burning the peacock feathers at around 1000°C): Small portions of peacock feathers were divided, preserved in clay crucibles (sharava samputa), and then treated to gajapua using 1,000 cakes of cow dung. The crucibles were separated after being allowed to cool naturally, and a black powder was then gathered. When the mixture reached the right consistency, cakrikas (pellets) were produced and dried in the shade after being triturated with Palamla Kvtha (a decoction of Butea monosperma) and the powder. They were then placed in sharava samputa (earthen crucibles covered with lids) and put through Gajapua using 1,000 cakes made of cow dung. With Droapupi svarasa (juice of Leucas cephalotes spreng) and Cakramarda svarasa (juice of cassiatora), respectively, the identical technique was once again carried out. Each trituration ended with the application of one Gajapua. In this way, a total of four Gajapuas were used to produce a Mayrapuccha Bhasma that was brownish-black in hue.

PHYSICO-CHEMICAL ANALYSIS

Various Physico-chemical tests like;

- Organoleptic test
- Inorganic elements
- Total Ash
- Moisture content
- Curd test
- Acid insoluble ash
- Water-insoluble ash

Utilising common techniques including the solubility test, ash value, pH value, specific gravity, moisture content, preliminary organic analysis, gravimetric analysis, etc., Samples A and B's Physico-chemical characteristics were assessed. The samples obtained in this way passed the dadhi park (curd test) of the Bhasma parks (tests for correctly manufactured calix). A small amount of Mayurpiccha Bhasma was sprinkled on curd that was stored in an earthen jar for the curd test, and the curd's colour was then checked. There was no colour change in the curd.

ORGANOLEPTIC TEST

The completed product was examined for

- Sparsha
- Roopa
- Rasa
- Gandha

INORGANIC TEST

Inorganic elements, such as calcium, iron, zinc, and copper oxides, were found using XRF.

TOTAL ASH VALUE

method of 5 gm the sample should be weighed and kept in a silicon crucible. This crucible is kept on wire gauze and heated using a gas heater.7 The heating is kept up until the vapours have diminished even after it starts to generate odours. The crucible is then put in a muffle furnace, evenly spaced from all four walls, and the temperature is raised gradually over the course of six hours to 450°C. After complete burning and self-cooling, the total ash is calculated in terms of percentage (percent w/w). [The percentage value of total ash content = (Weight of ash obtained/Weight of sample taken) X 100]

ACID INSOLUBLE ASH

The produced ash is washed in 25 mL of diluted hydrochloric acid and then transferred to a 100 mL beaker. The food mentioned above boils for 5 minutes. Using ash-free filter paper, the contents are filtered, and the residue is twice washed with hot water. In a muffle furnace, filter paper is placed in a silica crucible and heated to 450°C over the course of many hours. After complete combustion and self-cooling, the crucible is taken out and put in a desiccator. A silica crucible's ash content is weighed. The proportion of acid-insoluble ash is then calculated (percent weighted average). [The percentage value of acid-insoluble ash = (Weight of ash remained in Crucible/Weight of sample taken) X 100]

WATER-SOLUBLE ASH

To prepare the ash, proceed as before, but use 25 mL pure water as opposed to 25 mL HCl. It is measured how much ash is in the silica crucible. The amount of water-soluble ash is then calculated and represented as a percentage (percent w/w) using the amount of ash lost in water. [The percentage value of water-soluble ash = (Weight of ash dissolved in water/Weight of sample taken) X 100]

MOISTURE CONTENT

A 5-g sample should be weighed and kept in a ceramic crucible. The hot air oven's thermostat is adjusted to 105°C, and it is given some time to stabilise there.8 The sample is kept in a porcelain crucible that is placed on an oven tray that is evenly spaced from each of the four oven walls. The sample has to be dried for an hour. The porcelain crucible is taken out and put in a desiccator to prevent moisture absorption. After the sample-containing

self-cooling porcelain crucible has been weighed, the weight loss due to drying is computed. The proportion (weighted average in percent) used to represent moisture content. [Percentage Value of Moisture content = (Weight of sample obtained/Weight of sample taken) X 100]

DADHI TEST

When curd is sprinkled with Mayurpiccha Bhasma, a color shift is seen.

OBSERVATION ON PHARMACEUTICAL AND ANALYTICAL STUDY

- Pharmaceutical Study
- Analytical Study

PHARMACEUTICAL STUDY

Weight of raw material (Peacock feather)	500 gm
Temperature acquired during the procedure	~ 200^0 C
Time required	58 min
Weight of finish product (Mayurpiccha Bhasma)	228 gm

ANALYTICAL STUDY

ORGANOLEPTIC STUDY

Organoleptic characters	**Observation**
Sparsha (Touch)	Soft
Roopa (Colour)	Black powder form
Rasa (Taste)	Tasteless
Gandha (Smell)	Unpleasant

INORGANIC ELEMENTS

Content	Oxide content	Mass %
K_2O	1.345	2.867
TiO_2	1.765	0.543
CuO	0.876	0.234
MnO	0.234	0.654
Br	0.654	0.765
O_2	-	42.876
Cao	28.345	20.345
SO_3	30.785	16.876
Fe_2O_3	10.456	10.987
SiO_2	12.567	5.345
Al_2O_3	5.564	3.654
ZnO	4.345	4.897
Cl	**3.456**	4.876

PHARMACEUTICAL ANALYSIS

Parameters	Results
% Of Total ash	30% w/w
% Of Acid insoluble ash	6% w/w
% of Water-soluble ash	13% w/w
Moisture content (%)	4%

DISCUSSION

Mayrapuccha Bhasma (Calx of peacock feather) underwent organoleptic and physical constants analysis after being manufactured using two distinct ways. According to the observations, has an awful smell, is soft to the touch, has no flavor, and seems to be a black, amorphous powder. As a result of four Gajapuas, which burned the peacock feathers at a temperature of roughly 1000oC using 1,000 cakes of cow dung, Atomic Absorption

Spectrophotometer (AAS) was used to carry out quantitative estimation of inorganic elements. The expressed juice of Pacga of Cakramarda (Cassiatora contains Na, K, Ca, Mn, Fe) and Palamla Kvtha (decoction of Butea monosperma - contains Na, K) used for trituration in the preparation may be the reason why contains more Cu, Fe, Zn, Na, K, Ca, Mg, Mn, and Al, though in a permissible amount.

Samples had pH value of 7.91 respectively. As a result, the pH value of Mayurpiccha Bhasma made using two different techniques do not differ significantly. Samples had moisture contents of 4% respectively. It was discovered to be lower in sample because it had undergone four Gajapuas (burning the peacock feathers at around 1000oC using 1,000 cakes of cow dung). Because peacock feathers were burned at temperatures of around 100°C in sample, which might have resulted in the burning of organic components, samples were devoid of organic molecules.

CONCLUSION

With the process described in Siddhayog sangraha, 300gm of Mayurpiccha Bhasma was made from 500gm of peacock feathers. Mayurpiccha Bhasma was discovered to be a black, fine powder with a terrible odour and no flavour. XRF investigations were used to estimate inorganic elements quantitatively. CaO, SO3, Fe2O3, SiO2, Al2O3, ZnO, Cl, K2O, TiO2, CuO, MnO, Br, O2 are all present in the sample. The Mayurpiccha Bhasma was subjected to a physico-chemical analysis, and the results are reported. The findings might be extremely valuable in establishing Mayurpiccha Bhasma's pharmacopoeial standards.

Conflict of Interest -Nil

Source of Support -Nil

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