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# Pharmaceutico-analytical study of *Mayurpiccha Bhasma* - An Ayurvedic preparation

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## ABSTRACT

**Background:** *Mayurpiccha Bhasma* is a classical Ayurvedic *kalpa* prepare from peacock feathers, which is commonly used for treatment of Vomiting, Hiccups, Respiratory illness etc. Method of preparation of *Mayurpiccha Bhasma* is mentioned in *Siddhayog sangraha* and *Bhaishajya Samhita*. **Material and Methods:** *Mayurpiccha Bhasma* was prepared by procedure mentioned in *Siddhayog sangraha* i.e. Peacock feathers are burn on ghee flame and finished product was subjected to various Physico-chemical analysis like Moisture content, Ash value, Chemical components etc. **Observations:** Observations were noted while testing of finish product. **Result and Conclusion:** Various observations and reports of tests were noted.

**Key words:** *Mayurpiccha Bhasma*, Physico- chemical Analysis, *Siddhayog sangraha*.

## INTRODUCTION

Ayurveda is a holistic and one of the oldest branches of medicine that imparts complete knowledge about one's health. In Ayurveda, *Acharya* has mentioned *Chikitsa Chatushpada* i.e. four pillars of treatment which are *Bhishak*, *Dravya*, *Upasthata* and *Rogi*. *Ayurvedic Kalpa* comes under *Dravya* part of *Chikitsa Chatushpada*. *Dravya* is one of the important part of *Chikitsa Chatushpada*. All medicine (*Kalpa*) should be authentically prepared and analysed before using it in treatment.

*Mayurpiccha Bhasma* is a classical Ayurvedic preparation (*Kalpa*) which is prepared from peacock

feathers. It is commonly used for treatment of Vomiting, Hiccups, Respiratory illness etc.<sup>[1]</sup> Peacock feathers contain melanin, which gives them brown colour. Chemically peacock feather contain manganese, iron, zinc, copper etc.

In classical text i.e. *Bhaishajya Samhita* and *Siddhayog Sangraha* methods of preparation of *Mayurpiccha Bhasma* are mentioned. According to *Bhaishajya Samhita* it is prepared from giving four *Gajaputa*,<sup>[2]</sup> and according to *Siddhayog Sangraha* it is prepare by burning the peacock feathers on *ghee* flame.<sup>[3]</sup> This is an attempt to prepare *Mayurpiccha Bhasma* as per procedure mentioned in *Siddhayog Sangraha* and to analyse its physico-chemical standards.

## AIM AND OBJECTIVES

1. To prepare *Mayurpiccha Bhasma* as per the procedure mentioned in *Siddhayog sangraha*.
2. Physico- chemical analysis of *Mayurpiccha Bhasma*.

## MATERIALS AND METHODS

It contains mainly 2 parts;

- A) Preparation of *Mayurpiccha Bhasma*
- B) Physico-Chemical Analysis of *Mayurpiccha Bhasma*

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**A) Preparation of Mayurpiccha Bhasma****1. Collection of Raw material**

- a) Peacock feathers, ghee collected from local market.
- b) Authentication of Raw material done by the experts from department of *Rasashastra* and *Bhaishajya Kalpana, Drvayaguna*.

**2. Raw material**

- a) Peacock feathers
- b) Ghee

**3. Method of preparation of Mayurpiccha Bhasma**

*Mayurpiccha Bhasma* was prepared as per the procedure mentioned in *Siddhayog Sangraha, Vamanadhikar* (pg.no.45)

- a) Peacock feathers were cut into pieces and burnt on ghee flame.
- b) Calx obtained was triturated in *Khalvayantra* until it becomes fine black powder form.
- c) *Mayurpiccha Bhasma* was kept in air tight container.

**B) Physico-Chemical Analysis**

Black colour powder of *Mayurpiccha Bhasma* was subjected to various Physico-chemical tests<sup>[4]</sup> like;

- a) Organoleptic test
- b) Inorganic elements (XRF)
- c) Total Ash
- d) Acid insoluble ash
- e) Water insoluble ash
- f) Moisture content
- g) Curd test

**a) Organoleptic test**

*Sparsha* (touch), *Roopa* (colour), *Rasa* (taste), *Gandha* (smell) of the finish product were observed.

**b) Inorganic elements<sup>[5]</sup>**

Inorganic elements in the form of oxides like Calcium, Iron, Zinc, and Copper were observed through XRF.

**c) Total Ash**

Procedure - 5 gm Sample is weighed and kept in a silicon crucible. This crucible is kept on wire gauze and heated on a gas stove. It starts emitting fumes and heating is continued until fumes subside. Then this crucible is kept in muffle furnace equidistant from four walls and temperature is gradually raised up to 450°C for 6 hours. After complete incineration and after self-cooling, Then the total ash is calculated in terms of percentage (%w/w).

Percentage value of total ash content = (Weight of ash obtained/Weight of sample taken) X 100

**d) Acid insoluble ash**

Procedure - Above prepared ash is washed into a 100 ml beaker using 25 ml. of dilute hydrochloric acid. Above preparation is boiled for 5 minutes. Contents are filtered through an ash less filter paper; residue is washed twice with hot water. Filter paper is placed in a silica crucible and incinerated by gradually increasing the heat in a muffle furnace at 450°C for some hours. After complete incineration and after self-cooling, crucible is taken out and kept in a desiccator. The weight of ash with silica crucible is noted. Then the acid insoluble ash is calculated in terms of percentage (%w/w).

Percentage value of acid insoluble ash = (Weight of ash remained in Crucible/Weight of sample taken) X 100

**e) Water soluble ash**

Procedure - The method up to preparation of ash is same as above, instead of 25 ml HCl; 25 ml of distilled water must be used. The weight of ash with silica crucible is noted. Then the loss of ash in water is calculated and water soluble ash value is quantified in terms of percentage (% w/w).

Percentage value of water soluble ash = (Weight of ash dissolved in water/Weight of sample taken) X 100

**f) Moisture content**

Procedure - 5 gm sample is weighed and kept in a porcelain crucible. Hot air oven thermostat is adjusted to 105°C and left for certain time to get stabilized at

that temperature. Porcelain crucible with sample is kept on oven tray with equidistant from four walls of oven. Sample is dried for one hour. Porcelain crucible is taken out and kept in desiccator to prevent any moisture absorption. After self-cooling porcelain crucible with sample is weighed to calculate the loss of weight on drying. The percentage content of moisture value is calculated in percentage (%w/w).

Percentage Value of Moisture content = (Weight of sample obtained/Weight of sample taken) X 100

#### g) Curd test

*Mayurpiccha Bhasma* sprinkled on curd and colour change in curd is observed.

### OBSERVATIONS AND RESULTS

It has 2 types of observations;

- Pharmaceutical observations
- Analytical observations

#### A) Pharmaceutical observations

Observations while preparation of *Mayurpiccha Bhasma* is noted here.

**Table 1: Shows pharmaceutical observations while preparation on *Mayurpiccha Bhasma***

Weight of raw material (Peacock feather)	600 gm
Temperature acquired during procedure	~ 180°C
Time required	50 min
Weight of finish product ( <i>Mayurpiccha Bhasma</i> )	270 gm

#### B) Analytical observations

##### a) Organoleptic characters

**Table 2: Shows Organoleptic characters of *Mayurpiccha Bhasma***

Organoleptic characters	Observation
<i>Sparsha</i> (Touch)	Soft ( <i>Shlakshna</i> )
<i>Roopa</i> (Colour)	Black powder form

<i>Rasa</i> (Taste)	Tasteless
<i>Gandha</i> (Smell)	Unpleasant

#### b) Inorganic elements - (XRF Analysis)

**Table 3: Shows Inorganic elements present in *Mayurpiccha Bhasma* (XRF Analysis)**

Content	Oxide content	Mass %
CaO	34.000	24.298
SO <sub>3</sub>	29.300	11.735
Fe <sub>2</sub> O <sub>3</sub>	11.800	8.253
SiO <sub>2</sub>	10.400	4.861
Al <sub>2</sub> O <sub>3</sub>	3.770	1.995
ZnO	3.400	2.732
Cl	2.770	2.770
K <sub>2</sub> O	2.360	1.959
TiO <sub>2</sub>	1.070	0.641
CuO	0.469	0.375
MnO	0.408	0.316
Br	0.224	0.224
O <sub>2</sub>		39.841

#### c) Physico-chemical analysis

**Table 4: Shows Physico-chemical characteristics of *Mayurpiccha Bhasma***

Parameters	Results
% of Total ash	32% w/w
% of Acid insoluble ash	4% w/w
% of Water soluble ash	10% w/w
Moisture content (%)	4 %

#### d) Curd test

*Mayurpiccha Bhasma* sprinkled on curd. No colour change in curd is observed.

**CONCLUSION**

From 600gm of peacock feathers 270gm of *Mayurpiccha Bhasma* was produced with the procedure mentioned in *Siddhayog sangraha*. *Mayurpiccha Bhasma* was found to be black coloured, fine powder with unpleasant smell and tasteless. Quantitative estimation of inorganic elements was carried out by XRF studies. The sample contains CaO, SO<sub>3</sub>, Fe<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, ZnO, Cl, K<sub>2</sub>O, TiO<sub>2</sub>, CuO, MnO, Br, O<sub>2</sub> (Table 3). The physico-chemical analysis was carried out for the *Mayurpiccha Bhasma* and observations are presented in Table 4. The result obtained could be immense useful in laying down the pharmacopoeial standards of *Mayurpiccha Bhasma*.

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