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Elemental Analysis Of Mayurapicchadibhasma

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ABSTRACT

Mayurapicchadibhasma is an ayurvedic dosage form which is widely prescribed in the prevention of hiccup, vomiting especially in pregnant ladies. Mayurapicchadibhasma was prepared by providing thermal stress to peacock feathers(Pavo cristatus, Family: phasianidae) at 525^{0}C in muffle furnace. In this study, the mayurapicchadibhasma was screened for elemental analysis for ascertaining the presence of several elements in it. Upon elemental analysis by AAS(Atomic absorption spectrophotometer) and flame photometer, the mayurapicchadibhasma was found to contain the following elements zinc, manganese, sodium, iron, potassium, copper, phosphorous, gold and chlorine.

KEYWORDS

Mayurrapicchadibhasma;
Hiccup;
Muffle furnace;
AAS.

INTRODUCTION

Mayurapicchadibhasma is an important ayurvedic kalpa i.e.formulation which is widely prescribed in the prevention of hiccup, vomiting especially in pregnant ladies. Inorganic ions play an important role in the cure of several disorders[1]. Peacock feathers were obtained from pavo cristatus belonging to family phasianidae[2]. The feather consists of three parts i.e. blue, green and peripheral brownish.

EXPERIMENTAL

Temperature optimization in the preparation of bhasma

All parts of feather, after cleaning and size reduction(1-2mm), were subjected to thermal heating starting from 50^{0}C and observed regularly after ev-

Full Paper

ery 10^0C rise in temp. Fumes started to form at 390^0C and continued upto 450^0C[3]. Therefore, 450^0C is the temp. at which complete black mass/ash is obtained which is known as mashi.

Elemental analysis of mayurapicchadibhasma

The bhasmas of all parts of feather were prepared by heating a weighed amount of size-reduced and thoroughly cleaned pieces in a muffle furnace at 525^0C. For the detection of inorganic elements in the prepared samples, they were dissolved in 50% HCl(v/v) and 50% HNO_3(v/v) for an hour, filtered through ashless filter paper and qualitatively analyzed. In the quantitative analysis, Zn, Mn, Fe, Hg, Co, Cu, Pb, As, Au and Cd were determined by AAS (Atomic absorption spectrophotometer) in absorption mode[4]. Na and K were determined by AAS using emission mode. Phosphorous was determined by colorimetric method using visible spectrophotometer (absorbance, 690nm). For the determination of chloride ion, the samples were dissolved in distilled water and determined by volumetric method using mercuric nitrate as a titrant.

TABLE 1: Inorganic content analysis of different parts of peacock feather

Parameters	Blue part (%w/w)	Green part (%w/w)	Peripheral part (%w/w)
Total ash (at 525^0C)	32.49	2.742	3.2117
Potassium(K)	0.1117	0.0223	0.848
Iron(Fe)	0.0453	0.049	0.0792
Zinc(Zn)	0.0231	0.0369	0.0874
Sodium(Na)	0.0085	0.0365	0.0116
Copper(Cu)	0.00342	0.0039	0.0051
Maganese(Mn)	0.00277	0.0014	0.00244
Gold(Au)	0.00258	-	-
Phosphorous(P)	0.00204	0.00233	0.0031
Chloride(Cl^-)	0.0597	0.0598	0.0512

TABLE 2: Analysis of bhasma prepared at 525^0C

Parameters	Quantity
Total nitrogen	0.7192
Total carbon	Nil

RESULT AND DISCUSSION

The results of inorganic content estimation in different parts of feather have been shown in the TABLE 1 and 2.

The amount of nitrogen(%w/w) was calculated by Kjeldhal method whereas carbon-sulphur analyzer determined carbon content.

CONCLUSION

The mayurapicchadibhasma was found to contain zinc(0.0231% w/w), manganese(0.00277% w/w), sodium(0.0085% w/w), iron(0.0453% w/w), potassium(0.1117% w/w), copper (0.00342% w/w), phosphorous(0.0204% w/w), gold(0.00258% w/w) and chloride(0.0579% w/w).

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