

CHEMICAL COMPOSITION OF PATIKARAPARPAM

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ABSTRACT: *Patikaraparpam, a Siddha formulation is prepared by trituration of potash alum with egg albumin followed by calcination. The three authentic laboratories made parpams as well as six commercial samples have been examined for their chemical composition. The analytical data that emerged from the analysis of the above samples showed that seven parpams contained only aluminium sulphate and they did not respond to tests for potassium. An inspection of the crude drugs 'patikaram' available in the market established that potash alum and ammonia alum are indiscriminately taken for use, according to literature, only potash alum should be used in Indian system of medicine. Patikaraparpam is indicated in urinary inflammations and obstructions and is a reputed diuretic. Potassium salts are established diuretic. These studies show that the raw drug sellers, the pharmacologists or manufacturers of medicine and the physician as well should make sure that only potash alum is used in Indian medicine.*

INTRODUCTION

Patikaraparpam is Siddha compound formulation prescribed as a remedy for retention of urine urinary inflammations and obstructions, this is also a reputed diuretic^{1,2}. Patikaraparpam was prepared by trituration of patikaram (common alum) –Potassium aluminium sulphate with egg albumin followed by calcinations. As one of the twenty seven parpams allotted for standardization to this unit, patikaraparpam has been selected for chemical analysis with a view to ay down standards.

Three different samples of parpam have been prepared using the raw drugs procured from Madras drug market for this purpose. Analysis of one of three parpams indicated that it contained only aluminium and sulphate and potassium was not present. Two of the samples had aluminium, sulphate and potassium.

As per the siddha literature, the chief ingredient is patikaram³. Hence the raw drugs utilized in the preparation of parpams were subjected to chemical investigation.

Thus the present paper deals with the qualitative and quantitative analysis of various samples of patikaraparpams and the crude drug 'patikaram'.

MATERIALS AND METHODS:

The crude raw drugs were procured from the local drug dealers and patikaram was subjected to purification as detailed below¹². The raw drug was dissolved in water and a saturated solution was prepared. It was filtered, concentrated, covered with a cloth and allowed to crystallize. Separated the crystals, dried and used for preparation.

Preparation of patikaraparapam:

The purified patikaram was triturated with egg albumin, cakes were made, dried and calcined. Potash alum was also purchased and subjected to similar process to obtain parpams VIII-IX in laboratory scale.

Samples I-IV obtained from the Indian medical practitioner Co-operative pharmacy and stores Ltd. (IMPCOPS) were also analysed. Qualitative analysis was done as per the standard procedure⁴ (CCRAS 1987) the elements were determined following the methods described in Vogel⁵ and Treadwell and Hall⁶. Standard solution of parpam was prepared by fusion with a alkali carbonate (5 times the weight of the material) because the parpams were sparingly soluble in water and HCl^{5,6}.

RESULTS AND DISCUSSION:

Patikaraparapam samples I to IX were chemically examined. The product was a white fine powder, with astringent taste, analysis of I to VI indicated the presence of chloride (trace), sulphate, aluminium, and sodium and iron in traces. None of them responded to tests of potassium and ammonia. The parpams were found to be mainly present as sulphate/oxide of aluminium. It was sparingly soluble in water and hydrochloric acid.

The analytical values of samples I to IX are summarized in table 1. Parpams I to VI had sulphate 38 to 45%, aluminium 16 to 28% and their iron content varies from 0.016 to 0.52 % whereas in VII sulphate and aluminium were 44.24 and 9.9 (%w/w) respectively. In samples VII and IX, Sulphate, aluminium and potassium were 51.06, 12.52, 14.6 and 21.24, 10.66 and 16.41 % respectively.

Results of crude drug analysis

The chief ingredient of patikaraparapam is patikaram or chinakkaram equated to common potash alum. It occurs as white lumps, mostly in Nepal, Sindh, Cutch Punjab etc. from the soil it is also extensively manufactured in these places. The drug is mostly used in ophthalmia, ulcers, haemorrhage, sores, venereal and tooth complaints. Alum has been used as a flocculating agent in the purification of water⁷.

Under the name 'Patikaram' ten different samples have been procured from local raw drug dealers and qualitatively analysed for their authenticity. All of them did not correspond to potash alum but were found to be ammonia alum.

A sample obtained from Bangalore was also identified as ammonia alum, sulphate, aluminium and ammonia contents of Madras market⁵ sample were 42, 6.3, 3.6% respectively with traces of iron. Thus the analysis of eleven crude drugs collected from the market established that potash alum and ammonia alum are indiscriminately used, according to ISM literature, only potash alum should be used.

The literature references specify that if ammonia alum is heated, at 250°C, it becomes anhydrous, and beyond 280°C, the same thing has happened in the case of parpams of ammonia alum, further when calcinated it is no more a double salt it has become a simple salt of aluminium sulphate/oxide. Potassium element will never disappear on calcinations thus authentication of the final product is unmistakably sure.

Patikaraparapam is indicated in urinary inflammations and obstructions and as a

diuretic. The aluminium sulphate which resulted after calcinations of ammonia alum is not a recognized diuretic.

CONCLUSION :

Sample of patikaraparpam were chemically examined and it was found that in seven out of nine analysed samples, the raw material used was ammonium aluminium sulphate instead of potash alum.

From these studies it becomes clear that neither the raw drug dealers nor the manufactures of ISM know the exact chemical nature of patikaram – potassium aluminium sulphate or ammonium aluminium sulphate, that they are handling. Now it is shown that almost universally ammonia alum is being traded in and utilized, and that what is intended to use as patikaram is only potash alum.

Further these studies prove that the two raw drugs i.e potash alum and ammonia alum are indiscriminately used by the drug dealers because both of them look alike and cannot be differentiated. Because potash alum is costlier than ammonia alum, the latter one is being traded easily. This contravenes the specification given in the Government of India, ayurveda siddha and Unani formularies. Hence the raw drug sellers, the manufactures of Indian medicine as well as the practitioners should make sure that only potash alum is used in the preparation of patikaraparpam.

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**TABLE -1
ANALYTICAL DATA OF PATIKARAPARPAM**

Parameters	IMPCOPS Sample						Laboratory Sample		
	I	II	III	IV	V	VI	VII	VIII	IX
Sulphate	39.74	38.31	40.62	46.53	44.06	44.86	44.24	51.06	49.24
Aluminium	16.28	28.16	26.61	24.95	26.48	23.58	9.9	12.55	10.66
Potassium	----- Nil -----						-	14.00	13.16
Ammonia	----- Nil -----						-	-	-
Iron	0.084	0.098	0.151	0.218	0.512	0.19	Trace	Trace	Trace
Residue	1.47	0.39	0.91	0.87	1.14	0.70			
Loss on drying at 100°C	1.52	3.02	2.9	1.74	0.96	2.37			

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