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Physicochemical and Phytochemical Analysis of Siddha Herbo Mineral Formulation *Porikara Parpam*

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ABSTRACT

Porikara Parpam is a *Siddha* herbo mineral formulation known for its lithotriptic properties. The preparation and indications are provided in the classical *Siddha* literature *Agathiyar Vaidya Pooranam (205)*. The goal of this study is to investigate the physicochemical characteristics and phytochemical components of this extensively used medicine, as well as to provide data for making informed clinical interventions. The physicochemical and phytochemical analysis followed the AYUSH guidelines. The physicochemical results confirmed that the drug has good water, acid, and alcohol solubility and an alkaline pH. The phytochemical examination revealed the presence of alkaloids, glycosides, phenolic compounds, quinones, and carbohydrates. Further heavy metal analysis could be performed to standardize and support more evidence.

Keywords: *Porikara Parpam*, lithotriptic, *Siddha*, physicochemical characteristics, phytochemical components.

Background:

The *Siddha* system of medicine is renowned for its herbal, herbomineral, and mineral formulations. *Porikara Parpam* is one such formulation stated in *Agathiyar Vaidya Pooranam 205* [1] comprising Borax, Conch shell, and *Cissus quandrangularis*. *Parpam* is extensively administered for renal calculi since it has lithotriptic properties. It is also mentioned as a treatment for urethral stricture and as a diuretic in the above-mentioned text. Despite its widespread utilization, *Parpam* lacks scientific support. This study establishes the basis for standardizing the drug *Porikara Parpam*.

Materials and methods

The raw drugs were procured from an authenticated raw drug store in Parry's corner, Chennai. The raw drugs were authenticated and certified by the experts of Department of Gunapadam (Siddha Pharmacology) and Medicinal Botany, Government Siddha Medical College, Chennai. The raw drugs were then then purified as per the procedures mentioned in the text *Sarakku Suththi Sei Muraigal* [2].

Purification of raw drugs

Porikaram (borax) was taken roasted, grounded into fine powder, weighed and stored in an air tight container. *Sangu*, (conch shell) was taken, soaked in the water containing fullers earth for three hours, then washed, dried, weighed and stored in an airtight container.

Preparation of the drug

Purified conch shell of 3 *palam* (105 gms) was taken and powdered using an iron mortar and pestle, that then triturated with *Cissus quandrangularis* juice for 6 hours. The mixture was made into pellets and dried in sunlight. Then the dried pellets were placed in an earthen bowl, covered with earthened lid and sealed by clay plasters. The apparatus was incinerated using 20 cow dung cakes. The obtained *Parpam* was grinded with water and made into a crucible. The purified borax of 1 *palam* (35 gms) was placed in the above prepared crucible, sealed with the clay plasters and subjected into incineration with 10 cow dung cakes. After incineration the *parpam* was collected, powdered well, and stored in a clean air tight container.

Physicochemical analysis

The drug *Porikara Parpam* was physicochemically analyzed at the Research and Development wing of the Directorate of Indian Medicine and Homeopathy, Chennai in accordance with AYUSH standards. The analytical parameters include loss on drying at 110°C, total and acid insoluble ash, water and alcohol soluble extractives, and pH.

Phytochemical analysis

A preliminary phytochemical analysis was conducted on *Porikara Parpam* extracts to identify alkaloids, carbohydrate, saponin, phenol, tannin, flavonoid, diterpene, quinone, gum, and mucilage.

Results

1. **Physio Chemical Analysis**:

S.No	**Parameters**	**Results of analysis**
1.	Description	White color Powder
2.	Loss on drying at 110°C	3.30%
3.	Total Ash	94.04%
4.	Acid Insoluble Ash	0.93%
5.	Water Soluble Extractive	19.32%
6.	Alcohol Soluble Extractive	15.17%
7.	pH (5% Solution)	9.18

2. Phyto constituents of *Porikara Parpam:*

S. No	**Name of the Phytoconstitiuents**	**Aqueous Extract of *Porikara Parpam***
1.	Alkaloids	Present
2.	Flavonoids	Absent
3.	Glycosides	Present
4.	Lignin	Present
5.	Saponnins	Absent
6.	Steroids	Absent
7.	Terpinoids	Absent
8.	Tannins	Absent
9.	Phenolic Compounds	Present
10.	Proteins and Amino acids	Absent
11.	Carbohydrates	Present
12.	Gums and Mucilage	Absent
13.	Reducing Sugar	Absent
14.	Quinones	Present

Discussion

The formulation was found to be a white-coloured powder, indicating good homogeneity and absence of visible impurities. The **loss on drying at 110°C** was 3.30%, which suggests a low moisture content and therefore a reduced risk of microbial contamination or degradation during storage. The **total ash value** was 94.04%, reflecting the high mineral content characteristic of parpam formulations, as they are predominantly calcinated preparations. The **acid-insoluble ash** was 0.93%, which falls within acceptable limits, signifying minimal presence of extraneous siliceous matter such as sand or soil. The **water-soluble extractive value (19.32%)** was slightly higher than the **alcohol-soluble extractive value (15.17%)**, indicating that the formulation contains more water-soluble constituents, possibly minerals, carbohydrates, and polar phytochemicals. The **pH of a 5% solution was 9.18**, showing an

alkaline nature, which may contribute to its therapeutic efficacy in neutralizing excess gastric acidity and in conditions where alkalinity is beneficial. The preliminary phytochemical analysis revealed the presence of **alkaloids, glycosides, lignin, phenolic compounds, carbohydrates, and quinones** in the aqueous extract of *Porikara Parpam*. These constituents are known to contribute various pharmacological activities. The absence of **flavonoids, tannins, saponins, steroids, terpenoids, proteins, amino acids, reducing sugars, gums, and mucilage** indicates that the bioactivity of *Porikara Parpam* is primarily due to its mineral content along with a select group of organic phytoconstituents.

Conclusion

The results suggest that *Porikara Parpam* is a stable, mineral-rich formulation with both inorganic and organic constituents that may work synergistically to produce therapeutic effects. The high ash content confirms its mineral base, while the presence of alkaloids, phenolics, glycosides, and quinones adds pharmacological value. Its alkaline pH may further enhance its role in treating conditions associated with acidity. Thus, the combined physico-chemical stability and selective phytochemical profile support the traditional therapeutic claims of *Porikara Parpam* and justify its use in *Siddha* medicine.

Reference

1. Agathiyar Vaidhya Pooranam -205, First Edition Central Council for Research in Ayurveda and Siddha, 1997
2. Directorate of Indian Medicine and Homeopathy, Sarakku Suththi Sei Muraigal.