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Research Article

THE PHARMACEUTICAL AND ANALYTICAL STUDY OF *PALASH KSHARA*

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ABSTRACT

Background: *Kshara* is an important dosage form mentioned in Ayurveda which is derived from plant ash. The *Kshara* have some similar properties like alkaline nature, water solubility, whitish color etc. *Kshara* are given advantage over all surgical and parasurgical measures as it can be used in thin, weak and patients who fears for surgery. Different herbs like *Apamarga, Snuhi, Kadalipalasha* are used to prepare *Kshara* either single or collectively in classical texts. Therapeutic use of *Kshara* of different herbs differs from each other hence analytical study of each *Kshara* is necessary. **Aims & Objectives**: In the present study preparation of *Palash (Butea monosperma) kshara* and analytical study is done to understand the characteristics of *Palashkshara*. **Material & methods**: The preparation of *Kshara* is a multistep procedure. In the present study preparation of *Palasha Kshara* is done according general method of preparation of *Kshara* mentioned in *Sharangadhara Sanhita*. Prepared *Kshara* is subjected to various Physico chemical analyses and results are concluded. **Results**: The *Palash Kshara* shows physical properties like whitish in color, pungent odor and soft in touch. Chemically it shows combination of Potassium, Phosphate and Sulphate along with other elements in traces. The present study gives the details of methodology and results of the pharmaceutical and analytical study of *Palash Kshara*.

KEYWORDS: *Palash Kshara*, *Butea monosperma, Kshara*, Physico chemical analyses.

INTRODUCTION

The word *Kshara* is defined by *Shabda kalpdruma* as *Kshara Sancalani* which means melts or moves.[1] *Sushruta* defines *Kshara* as substance having *Ksharana* property which means cleaning of the excessive morbid *Doshas, Kshara* also have property of disintegration. Superiority of *Kshara* can be explained as they perform the work of incision, puncture and scarification and correct derangements of *Tri Doshas* and uniformly affect the diseased part to which they are applied. *Ksharas* are the substances which are whitish in color, having burning sensation, pungent in taste, endothermic and irritant. *Palash Kshara* is one of the *Kshara* preparation mentioned in classical texts used in treatment of liver enlargement, spleen enlargement, urinary stones, tumors etc. *PalashKshara* is also used internally as an ingredient in compound drugs. So here is an attempt to study the preparation and analytical study of *Palasha-kshara* prepared according to *Sharangdhar Samhita*.[2]

MATERIAL AND METHODS

The *Kshara* prepared from the *Palash* (*Butea monosperma*) plant using the wood (*Kashtha*) was subjected to Organoleptic and analytical tests and results were obtained to decide the elemental and chemical composition of the *Palashkshara*.

Preparation of *Palashkshara*

Wood i.e., *Kashtha* of *Palash* (*Butea monosperma*) was collected in the month of December and January. The authentication of *Palashkshara* was done. The material was cleaned, cut into smaller pieces and allowed to dry. After sufficient drying all the collected material was burned openly in big iron pan and whole ash white in color was collected after self-cooling. The ash obtained was filtered through mesh no 20 to remove unburned part. The ash obtained after filtration was mixed with four times water. All the ash was thoroughly mixed with water and kept aside for 16 hours. In next morning the supernatant clear water was filtered through fine cotton cloth. The filtration was done repeatedly for 21 times. The *Ksharajal* obtained was subjected for heating to evaporate the water content. During the process of evaporation of water continuous stirring was made to avoid sticking and burning of material. The flame of gas stove was medium. When almost all the water content of the material gets evaporated heating was stopped and

the residue was dried in sunlight to get whitish grey colored powder. It was collected and kept in an air tight container. [3]

Tests for Physical properties of *Palashkshara*

Physical properties evaluated by some of the physical parameters mentioned in the ancient classics as Color, Odor, Touch and Taste with the help of sense organs including eye, nose, skin and tongue. In traditional system of medicine the examination of prepared drug is mentioned to check the properties and qualities of products. The properties which are easily identified with sense organ are checked by this method. The obtained results of physical properties of *Palashkshara* compared to general characteristics of *Kshara* given by *Sharangadhara* and *Sushruta Samhita*. Textual references regarding *Kshara* properties mentions its color as *Sitaprabha* (whitish) or *Shukla, Churnabha* (amorphous in nature), smooth in texture.

Physico-chemical tests

P^H of *Kshara* [4]

The P^H value conventionally represents the acidity or alkalinity of an aqueous solution. In the Pharmacopoeia standards & limits of P^H have been provided for those Pharmacopoeia substances in which P^H as a measure of the H+ ion activity is important from the standpoint of stability or physiological suitability. The determination is carried out at a Temperature of 25°C (± 2°C).

Apparatus

Glass electrode, a reference electrode & P^H meter.

Procedure

Immerse the electrode in the solution under examination & measure the P^H at the same temperature which was used for standard solutions. At the end of the set of measurements, record the P^H of the solution used to standardize the meter & the electrodes. If the difference between this reading & the original value is greater than 0.05, the set of measurements is repeated.

Loss on Drying (LOD) [5]

This test is conducted to evaluate the moisture content of the sample drug.

Procedure: Petri dish is to be cleaned with distilled water and dried in oven at 105°C for 2 hours. One gram of drug sample is taken in a pre-weighed dried Petri dish. It is to be dried in oven at 105°C till a constant weight is reached. The Petri dish is to be taken out, self-cooled and weighed immediately. The weight loss, i.e. loss on drying is calculated and expressed as % w/w.

Ash Value [6]

This test is conducted to evaluate the ash content of the sample.

Procedure: The crucibles are initially cleaned with distilled water and dried in oven at 105° C for 2 hours. One gram accurately weighed sample is taken in a pre-weighed dried crucible and incinerated in a muffle furnace up to 600° C. The crucible is then taken out, self-cooled and weighed immediately. The percentage of ash obtained is calculated from the weight of the ash obtained and expressed as % w/w.

Acid Insoluble Ash [7]

The acid insoluble ash content test is conducted to assess the percentage of inorganic content of the sample which is insoluble in dilute acid.

Procedure: The ash of the test drug is to be taken with 25 ml dilute HCL in a 100 ml beaker, boil for few minutes and cooled. Then filtered through filter paper No.41 (ash less) and washed with distilled water repeatedly till it became chloride free. The filter paper in the glass funnel, along with its residue is to be kept for drying in the oven. The dried paper along with the residue is then shifted to a pre-weighed crucible and kept in muffle furnace and heated up to 600° C. On cooling, it was weighed and the acid insoluble ash content is calculated from the weight of residual obtained and expressed as % w/w.

RESULTS AND OBSERVATIONS

Table 1: The different observations during the Pharmaceutical process

Weight of fresh material collected (*Palash* –Wood)	10.750 Kg
Weight of *Palash* after drying	5.00 Kg
Weight of fine ash obtained	625 gm
Amount of water used to mix the ash	2.5 Liter
Ksharajala obtained	1.9 Liter
Time required to evaporate the water	2 hours 30 min
Weight of *Kshara* obtained	25gm
Percentage of *Palashkshara* obtained	4 % of Ash and 0.5 % of dried *Palash* wood

Palashakshara was evaluated with the organoleptic characters for color, smell, touch and taste in the quality control laboratory.

Table 2: Shows the obtained results after the organoleptic examination

Sl. No.	Organoleptic Characters	Result
1	Color	Whitish
2	Smell	Pungent
3	Touch	Soft
4	Taste	Salty

Physico-chemical characters like P^H, loss on drying, ash value and acid insoluble ash were tested in quality Control laboratory.

Table 3: Physico-chemical characters

Sl.No.	Test	Result
1	**P^H**	11.5
2	Loss on drying (% w/w)	2.982
3	Ash value (%w/w)	92.94
4	Acid insoluble ash	0.28

Quantitative Estimation of the *Palashkshara* was done by ICP –OES method from IDRA Laboratory, Pune.

Table 4: Quantitative Estimation of the *Palashkshara*

Sl. No.	Component	Quantity
1	Sulphate	Not less than 9.610 percent w/w Not more than 38.512 percent w/w
2	Phosphate	Not less than 9.27 percent w/w Not more than10.14 percent w/w
3	Iron as ferrous	Not more than 1.93 percent w/w
4	Iron as Fe_2O_3	Not less than 3.92 percent w/w Not more than 4.19 percent w/w
5	Aluminum as Al_2O_3	Not more than 3.02 percent w/w
6	Calcium	Not less than 0.986 percent w/w Not more than 2.170 percent w/w
7	Magnesium	Not more than 3.07 percent w/w
8	Potassium	Not less than 27.994 percent w/w Not more than 40.410 percent w/w
9	Carbonate	Not more than 9.668 percent w/w
10	Chloride	Not more than 7.053 percent w/w
11	Sodium	Traces

DISCUSSION

Palashkshara is mentioned in various classical texts. It is widely used internally in the treatment of various diseases like renal stones, tumors, enlarged liver and spleen. Externally it is used in wounds for better healing. For the preparation of *Palashakshara* leaves, flowers or wood can be used but wood yields more ash so it is used in present study. Drying of material is necessary for proper burning of material. Open burning of *Palash* gives optimum quantity of fine ash. For the preparation of *Kshara* four times of water is used. According to reference mentioned in *Sushruta samhita* six times water is used. If more water is used then more time is required to evaporate it. Proper mixing of ash with water is necessary to dissolve the *Kshara* completely in water. Ash mixed with water should be settling down hence about 14 to 16 hours' time required. The supernatant fluid should be

separated properly either fine cotton cloth or filter paper is to be used for the separation. The process of filtration is done for 21 times to avoid the insoluble particles completely. The heating was on medium flame to avoid sticking to pan. The color of water gets changed from colorless to brown and from brown to whitish gray. The color of obtained *Kshara* was whitish grey and amorphous in touch. The P^H of the aqueous solution of *Kshara* is 11.5 which indicate alkaline nature of *Palashkshara*. Quantitative estimation shows the presence of potassium in large quantity along with sulphate.

CONCLUSION

Palashkshara is an alkali consisting of the water soluble ash of *Palash* plant. An aqueous solution yields characteristics of potassium. *Palash kshara* contains sulphates, phosphate, iron as ferrous and Fe_2O_3, Aluminum as Al_2O_3, Calcium, Magnesium, Potassium, Carbonate, Chloride, Sodium. The alkaline nature *Palashkshara* helps in treatment of *Agni-mandya* (Digestive impairment), *Gulma* (Abdominal lump), *Pleehayakrutvhrudhi* (Enlargement of liver and Spleen), *Mutrakrucchra* (Dysuria), *Ashmari* (Calculus), *Mutrasharkara* (Gravel in urine), *Grahani* (Malabsorption syndrome), *Anaha* (Distension of abdomen due to obstruction to passage of urine and stools), *Visuchika* (Gastro-enteritis with piercing pain)as *Paneeyakshara* (i.e. when used internally). It is also used as *Pratisarneeyakshar* (when used as an external application) or in *Ksharasutra* along with other *Kshara* in treatment of wounds non healing ulcers, fistula in Ano (*Bhagandar*) due to its cutting and healing property. Study the role of potassium ions present in the *Kshara* is the further scope of study.

REFERENCES

1. Raja Radha Kanta Deva, Shabdkalpadrum, volume 2, Varanasi, Choukhambha Sanskrit Series, Page no 231.
2. Dr.Smt. Shilaja Shrivastava, Sharangadhara Samhita. 4th Edition. Varanasi: Chaukambha Orientalia; 2005, page no. 275.
3. Dr.Smt Shilaja Shrivastava, Sharangadhara Samhita. 4thEdition. Varanasi: Chaukambha Orientalia; 2005, 275.
4. Prof. G. S. Lavekar, Laboratory guide for the analysis of Ayurveda and siddha formulations, CCRAS, Page No. 42.
5. Prof.G.S.Lavekar, Laboratory guide for the analysis of Ayurveda and Siddha formulations, CCRAS, , Page No. 27.
6. Prof.G.S.Lavekar, Laboratory guide for the analysis of Ayurveda and Siddha formulations, CCRAS, Page No. 28.
7. Prof.G.S.Lavekar, Laboratory guide for the analysis of Ayurveda and Siddha formulations, CCRAS, Page No. 28.

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Photographs *Palash Kshara* of Preparation