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PREPARATION AND PHYSICOCHEMICAL EVALUATION OF ARKA PRATISAARANEeya KSHARA.

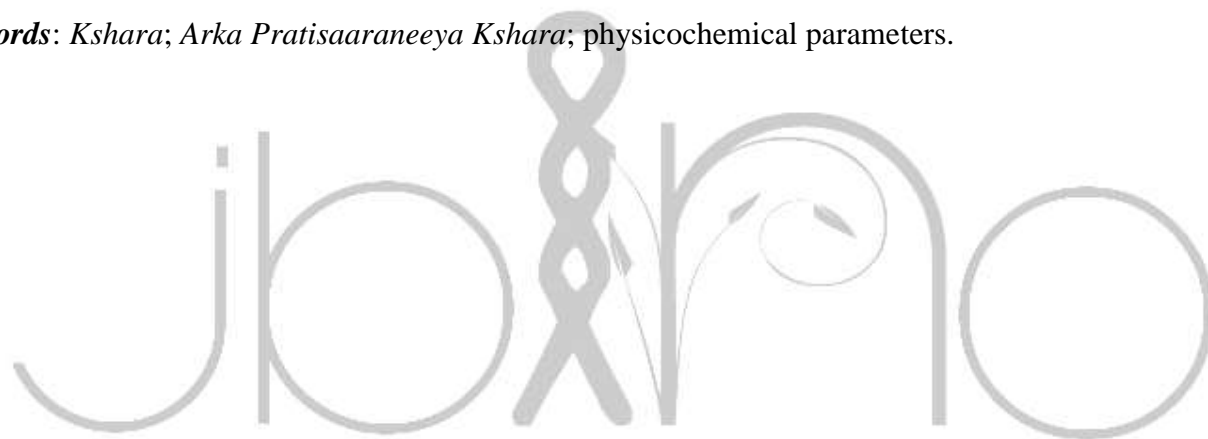
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ABSTRACT

Kshara is an alkaline preparation used for multiple purposes mentioned for therapeutical purposes in Ayurveda. It is of various types according to the strength of preparation and according to different mode of administration. It is made up of different herbs and minerals. Different Acharyas has mentioned different drugs for the preparation of Kshara. In this study, physicochemical parameters are evaluated and analysed on Arka (one among the drug explained by Acharyas), which is used to prepare Arka Pratisaaraneeya Kshara.

Keywords: Kshara; Arka Pratisaaraneeya Kshara; physicochemical parameters.



Introduction

Kshara is an alkaline substance prepared from herbs or minerals. It has property of *Ksharana* (destroying) the tissues where it is applied.¹ According to the strength by preparation, it is classified as *Mridu* (soft), *Madhyam* (moderate) and *Teekshna* (sharp). According to mode of administration, it is classified as *Paaniya* (oral) and *Pratisaaraneeya* (local application). *Paaniya Kshara* is indicated in *Gara visa*, *Gulma*, *Udara*, *Agnimaandya*, *Malasanga*, *Ajirna*, *Arocaka*, *Aanaaha* etc.² *Pratisaaraneeya Kshara* is indicated in *Arbuda*, *Bhagandara*, *Tilakaalaka*, *Nyachya*, *Vyanga*, *Arbuda*, *Nadi vrana* etc.³ Acharya Susruta has explained 24 drugs that can be used for *Kshara* preparation like *Apamarga*, *Arka*, *Palasha*, *Yava*, *Snuhi*, *Kadali* etc.⁴ Special mentioning of *Pippali Kshara* for the management of *Pleehodara* was done by Yoga *Ratnakara*.⁵ Regarding the preparation of *Apamarga Kshara*, all the authors have advised to burn the dried *Apamarga* (*Achyranthes aspera*) plant and dissolve the ash in water or *gomutra* (cow's urine). But the ratio in

which the ash is mixed with the water is different according to different Acharyas. Acharya Sharangadhara has mentioned the use of 4 times of water, whereas Acharya Susruta, Acharya Yadavji has mentioned the use of 6 times by volume of water.⁶ This method of preparing *Apamarga Kshara* is adopted for the preparation of *Kshara* in this study. *Arka* for *Kshara* preparation is evaluated and analysed for physicochemical parameters as per Standardization procedure.

Materials and Methods

Identification of *Arka* plant, collection, drying, burning and preparation of ash, and preparation of *Pratisaaraneeya Kshara* were done. Fresh, matured plant of *Arka* (*Calotropis procera*) was collected. The plant sample was authenticated by Department of Dravyaguna, SDM College of Ayurveda and Hospital, Hassan on the basis of its pharmacognostical characters as well as through various physicochemical parameters with the standards mentioned in Ayurvedic Pharmacopeia of India.⁷

Preparation of Arka Pratisaaraneeya Kshara

Table 1: Ingredients for Kshara preparation.

| S.No. | Sanskrit name | Botanical name (in italics) | Part used | Proportion |
|-------|---------------|-----------------------------|-----------|----------------------------|
| 1 | Arka | <i>Calotropis procera</i> | Panchanga | 1 part |
| 2 | Shukti | Oyster Shell | Shell | 1/10 part of <i>Kshara</i> |
| 3 | Chitraka | <i>Plumbago zeylanica</i> | Moola | 1/10 part of Shukti |





Method of Preparation:

Panchangas of *Arka*(*Calotropis procera*) plant was collected, dried up and burnt. The ash collected and was mixed with six times of water and filtered for 21 times. The filtrate is clean and clear like *Gomutra Varna* and it is kept on mild fire and reduced to $2/3^{rd}$. Then add red hot *Shukti* $1/10^{th}$ part into the filtrate solution and continuously

stirred well until it reduces to $1/3^{rd}$. This was further heated up by adding $1/10^{th}$ part of *Chitraka Kalka*. After this thick solution was obtained which is known as *Arka/Apamarga Pratisaraneeya Kshara*. It was stored in air tight container. The prepared *Arka Pratisaraneeya Kshara* was kept in sterile air tight glass container with proper labeling.

Photographic presentation of steps of *Kshara* preparation



| | | |
|--|---|--|
|  |  |  |
| 10 | 11 | 12 |
|  | | |
| 13. | | |
| <p>1. Drying of plant. 2. Dried plant 3. Ready to burn the plant. 4. Burning of plant. 5. After complete burning. 6. Mixing ash with water. 7. Filtering the ash mixed water. 8. Heating the filtrate in iron utensil. 9. Boiling of filtrate. 10. Heating of Sukti. 11. Collected <i>Citrakamoola tvak kalka</i>. 12. Ready <i>Kshara</i> after mixing <i>Sukti</i> and <i>Citrakamoola tvak kalka</i>. 13. Storage in glass container.</p> | | |

Analytical study

The *Kshara* was prepared of desirable quality in terms of safety and efficacy. The *Kshara* was standard not only in terms of Ayurvedic classics but also from the modern instrumental method of analysis.

Methodology of Physicochemical standardization

Loss on drying at 105°C

10 g of sample was placed in tared evaporating dish. It was dried at 105°C for 5 hours in hot air oven and weighed. The drying was continued until difference between two successive weights was not more than 0.01 after cooling in desiccator. Percentage of moisture was calculated with reference to weight of the sample.

Total Ash

2 g of sample was incinerated in a tared platinum crucible at temperature not exceeding 450°C until carbon free ash is obtained. Percentage of ash was calculated with reference to weight of the sample.

Acid insoluble Ash

To the crucible containing total ash, add 25ml of dilute HCl and boil. Collect the insoluble matter on ashless filter paper (Whatmann 41) and wash with hot water until the filtrate is neutral. Transfer the filter paper containing the insoluble matter to the original crucible, dry on a hot plate and ignite to constant weight. Allow the residue to cool in suitable desiccator for 30 mins and weigh without delay. Calculate the content of acid insoluble ash with reference to the air dried drug.

Water soluble ash

The ash was boiled for 5 min with 25 ml of water; insoluble matter on an ashless filter

paper was collected, washed with hot water, and ignite for 15 min at a temperature not exceeding 450°C. The weight was subtracted of the insoluble matter from the weight of the ash. And, the difference in weight was calculated for the water soluble ash with reference to the air-dried sample.

Determination of pH

Preparation of buffer solutions: Standard buffer solution: Dissolved one tablet of pH 4, 7 and 9.2 in 100 ml of distilled water was done. Determination of pH: 0.4 g of sample was taken and make up to 40 ml with distilled water, stirred well and

filtered. The filtrate was used for the experiment. Instrument was switched on. 30 minutes time was given for warming pH meter. The pH 4 solution was first introduced and the pH adjusted by using the knob to 4.02 for room temperature 30°C. The pH 7 solution was introduced and the pH meter adjusted to 7 by using the knob. Introduced the pH 9.2 solution and checked the pH reading without adjusting the knob. Then the sample solution was introduced and reading was noted. Repeated the test four times and the average reading were taken as result.

Results

Table 2: Results of standardization parameters of Arka pratisaarneeya Kshara

| Parameters | Results |
|--------------------|--------------------|
| | Results n = 3 %w/w |
| Loss on drying | 27.57 |
| Total ash | 69.94±0.01 |
| Acid insoluble ash | 0.57±0.00 |
| Water soluble ash | 52.22±0.01 |
| pH | 14.0 |

Analysis of the parameters, this study shows loss on drying 27.57%w/w. Total ash value was 69.94±0.01%w/w with acid insoluble as 0.57±0.00 and water soluble ash 52.22±0.01 respectively. The PH of the solution was 14.0.

of Ayurveda and Hospital, Hassan for the preparation of the Arka Pratisaaraneeya Kshara. And, SDM Centre for Research in Ayurveda and Allied Sciences, Udupi for evaluation and analysis of the parameters in laboratory setup.

Conclusion

This simple method of preparation of Kshara and standardization parameters can serve as a guideline for other preparations of Arka Pratisaaraneeya Kshara.

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