AYURVEDIC APPROACH IN PREPARATION OF APAMARGA KSHAR, PHARMACEUTICAL STUDY, ITS BENEFITS AND SIDE EFFECTS - A LITERATURE REVIEW

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ABSTRACT

Ayurveda is a science of life and is an old system of natural healing which has its origin in vedic culture of India. In Ayurveda, kshara is the term used for alkaline (basic) ashes of plants which possess the action of Ksharana (to scrap). It is derived from the bhasma of a plant. It is most widely used in surgical and para surgical procedures. Kshara prepared from Apamarga plant is known as Apamarga Kshara. It is a potash rich alkaline ash of the plant Achyranthes Aspera (Linn) and is used as a single drug or in the preparation of caustic pastes and diuretic medicines. Kshara are used both externally and internally in different disease conditions. A typical processing technique is involved in the preparation of kshara. We find references depicting different opinions for preparation of kshara in various classical texts. For the present study reference mentioned in Sushruta Samhita was followed.

KEYWORDS: Kshara, Apamarga, Apamarga Kshara, Achyranthes Aspera (Linn).

INTRODUCTION

Acharya Sushruta the father of surgery has discussed in detail about various surgical methods and their importance in therapeutics. But the unique contribution of Sushruta and Ayurveda in the field of surgery is the concept of anushastr[7] (parasurgical substances and procedures), upayantra[8], agropaharneeya in which Kshara is included. Kshara is a derivative of plant drug ashes in the form of solutions, powder or crystals all of which has the basic quality of being alkaline in nature and causes ksharana to mamsa and dhatu.¹ Sushruta has described a special chapter for kshara karma procedure. Kshara are the substances possessing Ksharana
and Kshanan (destruction) properties\(^3\) and told that Kshara have Chedana (excision), Bhedana and Lekhana (scraping) properties\(^4\) As per Sushruta Kshara is prepared from 23 different ayurvedic plants as mentioned in text eg. Kuta\(j\)a (Holarrhena antidysentrica Linn.), Palash (Butea monosperma Linn.), Bibhitak (Terminalia belerica Roxb.) etc out of which Apamarga (Achyrantes Aspera Linn.) is one of the plant mentioned in the list.\(^2\) There are 2 types of kshara preparation: 1. Paniya Kshara- for internal use 2. Pratisarniya Kshara- for external use.\(^5\) Pratisarniya Kshara is further divided into 3 types i.e Mridu (mild in action), Madhyama (moderate in action), Tikshna (strong in action).\(^6\) Kshara is found effective in treating various diseases like Dushta vrana, Arsha, Bhagandara, Vidradhi, Charmakeela etc. Apamarga Kshara has tikshna (sharp), Ushna (hot), picchila (slimy), slakshna (smooth), shulhara (pain relieving) properties. In this study pharmaceutical steps in preparation of Apamarga Kshara is described in stepwise manner along with its medicinal uses in our day to day surgical practice.

AIM
To study the method of preparation of Apamarga Kshara along with its benefits and side effects.

OBJECTIVE
1. Preparation of Apamarga Kshara according to selected reference given in classical texts.
2. To study the pharmaceutical parameters, medicinal uses and side effects of Apamarga Kshara.

DRUG REVIEW: APAMARGA\(^9\)
Latin name – Achyrantes Aspera Linn.
Family- Amaranthaceae
Gana-
Charak: Shirovirechana (group of herbs used in expelling doshas from head and neck through nasya, dhoompana etc, Krumighna (group of herbs with antimicrobial and antiparasitic action), Vamanopaga (group of herbs used in vamana treatment)
Sushruta: Arkadi
English name- Rough chaff tree or Prickly chaff flower
Marathi name- Aghada
Hindi name- Latagira
Table No. 1: Properties of Apamarga.

<table>
<thead>
<tr>
<th>Rasa</th>
<th>Katu, Tikta</th>
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</thead>
<tbody>
<tr>
<td>Guna</td>
<td>Laghu, ruksha, tikshna</td>
</tr>
<tr>
<td>Virya</td>
<td>Ushna</td>
</tr>
<tr>
<td>Vipaka</td>
<td>Katu</td>
</tr>
<tr>
<td>Doshakarma</td>
<td>Kaphavatshamak, Kaphapitta Sanshodhana</td>
</tr>
</tbody>
</table>

MATERIAL AND METHODS\(^{[10]}\)

Standard manufacturing procedure for preparation of Apamarga Kshara is described as follows

1. Identification of Apamarga (Achyranthes Aspera Linn.) plant
2. Sample was thoroughly assessed for ayurvedic parameters such as rasa, virya, vipaka and panchabhautikatwa.
3. Panchanga (root, bark, leaves, flowers and fruit) of Apamarga was taken and collected.
4. Fresh Apamarga plant collected is then dried by keeping it in shade.
5. Each of the dried plant is packed separately with due care that approximately equal quantity of panchanga is taken
6. Dried plant is then burnt completely till greyish colored ash is formed which is devoid of mud, stones and charcoal.
7. The total volume of this ash is mixed with 6 times of distilled water and stirred with glass rod and the mixture should be left overnight.
8. The next morning only the supernatant fluid was collected, discarding the dark colored sediment in the container.
9. The supernatant fluid thus obtained was then filtered 21 times using a cotton cloth to obtain gaumutra varna ksharjala.
10. Ksharajala obtained was then heated to slow evaporation into the container till all the water was evaporated on mild to moderate flame with intermittent stirring for about 3-4 hours so as to avoid formation of crystals till ksharjala turned into reddish yellow colored (ishatrakta varna). When ishatrakta varna is obtained then it is called mrudu kshar or sanvyuhim.
11. Shankanabhi (shukti) weighing about 1/10\(^{th}\) part of apamarga ash should be obtained and is heated on hot iron pan. Once it was red hot, pottali of it was prepared. Pottali of shukti was dipped in mrudu kshara, then mrudu kshara turned into white color and heated on moderate flame and stirred continuously till it becomes thick in consistency. This is called as madhyama kshara.
12. Chitrakmula weighing about 1/10th part of shukti should be collected and chitrakmula paste should be kept ready. then madhyama is put off from the flame, allowed to cool for 5-10 minutes and then finely pasted chitrakmula kalka is added and stirred for its uniform distribution. The kshara thus obtained is tikshna apamarga kshara.

**PREPARATION OF APAMARGA KSHARA**

<table>
<thead>
<tr>
<th>Apamarga Plant</th>
<th>Drying Of Apamarga</th>
<th>Burning Of Apamarga</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Obtained Ash</strong></td>
<td><strong>After Filtration</strong></td>
<td><strong>Evaporation Of Ksharajala</strong></td>
</tr>
</tbody>
</table>

**Table No. 2: KSHARA GUN**\(^{11,13,13}\)

<table>
<thead>
<tr>
<th>Rasa</th>
<th>Katu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virya</td>
<td>Ushna</td>
</tr>
<tr>
<td>Varna</td>
<td>Shukla</td>
</tr>
<tr>
<td>Guna</td>
<td>Saumya, tikshna, agneya</td>
</tr>
<tr>
<td>Doshaghanata</td>
<td>Tridoshaghanata</td>
</tr>
<tr>
<td>Karma</td>
<td>Dahan, pachana, darana, vilayana, shodhana, ropana, shoshana, stambhana, lekhana</td>
</tr>
</tbody>
</table>
MEDICINAL USES OF APAMARGA KSHARA\(^{[17,18]}\)

1. It acts as a natural diuretic, useful in dysuria (difficulty in micturition)
2. It is useful to treat abdominal distension as in ascites, liver and spleen disorders.
3. It is used in ayurvedic treatment of ear diseases and leucoderma.
4. It is used in treating cold, cough and other respiratory diseases
5. It is also used in making ksharasutra for treatment of bhagandara (fistula), arsha (haemorrhoids) and vidradhi (Abscess) and in relieving pruritis.
6. It helps to breakdown the kidney and bladder stones.
7. It is also one of the efficient herb to induce weight loss

**Internal (oral) uses of Apamarga Kshara**

In Sushruta Samhita, Apamarga kshara along with some other plants, kshara taken along with goat’s urine is used to remove Mutraashmari (urinary stone). In Ashtang Hridaya, same recipe is mentioned in the treatment of gravel and stone. Chakradatta has mentioned that paste of Apamarga root kshara and haridra should be applied on Lingarsha. Likewise in successive texts, Apamarga kshara is incorporated in many formulations for the treatment of various diseases.

**External application of Apamarga Kshara**

The kshara is used in the form of external application in vrana, vranashotha and pakva bahya vidradhi. There are many research studies carried out for application of kshara on arsha, parikartika and pakva bahya vidradhi.

**Chemical Constituents**

The ethanol extract of the plant contained alkaloids and saponins, the shoot yielded a new aliphatic dihydroxyketone, characterized as 36, 47- dihydroxyhenpentacontan-4-one together...
with tritriacontanol. The root was found to contain oleanolic acid as aglycone from the saponin fraction.

**SIDE EFFECTS**\(^{[17,18]}\)

1. In high dose it may cause nausea and vomiting.
2. It is not suitable for use in pregnant ladies and infants
3. Can be used in lactating mothers and in children in lower doses for limited period of time.
4. For men undergoing infertility treatment, it is better to avoid long term usage of *Apamarga kshara*.

**DISCUSSION**

*Apamarga kshara* prepared from *Apamarga* plant (Achyranthes Aspera) is one of the most widely used medicinal drug for various different disease condition due to its clinical properties and efficacy. The action of *kshara* is to *ksharana mamsa* and other *dhatus*, so it is called *Kshara*. The *kshara* prepared from different plant ashes which are alkali in nature. It is available in the form of powder and crystals. *Sushruta* has considered *Kshara* is one of the *shashti upakarma* for the treatment of *vrana*. He also mentioned it as one of the type of *Anushastra*, one type of *Upayantra* and also *Agropaharaniya drayva*. In classics *Sushruta* emphasis more on *Ksharakarma* which is nothing but treatment done by *Kshara*. When *kshara* is administrated by trained or skilled physician in various indicated diseases it relieved serious disorders which are *yappya* and *krichyasadhya* (bad prognosis). If *kshara* applied or administrated by untrained person or quack then it will be harmful and have an adverse effect to the patient like *Agni*, *Shastra* and *Vajra* or even death of the patient may occur. Thus *kshara karma* has been considerd as wealth and a strong weapon in *Ayurveda* phamacopoeia. *Charaka* has considered *kshara* as *Shastra pranidhana* means having three fold actions. *Apamarga Kshara* has *tikshna* (sharp), *Ushna* (hot), *picchila* (slimy), *slakshna* (smooth), *shulhara* (pain relieving properties). Standard steps for preparation of *Apamarga kshara* are explained as per classical texts. *Apamarga kshara* is used in various different diseases such as *bhagandara* (fistula), *arsha* (haemorrhoids) and *vidradhi* (Abscess), kidney and bladder stones and in relieving pruritis. Pharmaceutical parameters of *Apamarga kshara* was studied and results were obtained as per mentioned above. *Apamarga kshara* has also got some side effects which one should be aware before using it on patients.
CONCLUSION

The above collection reveals that almost all the plants explained by Acharya Sushruta can produce kshara who are pharmacologically similar to Apamarga plant. In this study we have done detail review description on preparation of Apamarga kshara its pharmaceutical study along with its various benefits in different diseases and knowing its side effects. Efforts should be made so as to prepare and obtain kshara from other plants as each plant has its own advantage in terms of geographical occurrence, feasibility of pharmaceutical processing, drug patient interaction and user suitability. This will help us in more broad aspect in order to make use of different kshara in treating various diseases by doing clinical trials.

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