

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

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Article Received on
08 July 2018,

Revised on 29 July 2018,
Accepted on 18 August 2018,

DOI: 10.20959/wjpr201816-13233

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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 potash rich alkaline ash of the plant *Achyranthes Aspera*(Linn) and is used 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 *anushastra*^[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* (scrapping) properties^[4] As per *Sushruta* *Kshara* is prepared from 23 different ayurvedic plants as mentioned in text eg. *Kutaja* (*Holarrhena antidysentrica* Linn.), *Palash* (*Butea monosperma* Linn.), *Bibhitak* (*Terminalia belerica* Roxb.) etc out of which *Apamarga* (*Achyranthes 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 – *Achyranthes 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*.

<i>Rasa</i>	<i>Katu, Tikta</i>
<i>Guna</i>	<i>Laghu, ruksha, tikshna</i>
<i>Virya</i>	<i>Ushna</i>
<i>Vipaka</i>	<i>Katu</i>
<i>Doshakarma</i>	<i>Kaphavatshamak, Kaphapitta Sanshodhana</i>

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 $1/10^{\text{th}}$ 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 $1/10^{\text{th}}$ 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



Apamarga Plant



Drying Of Apamarga



Burning Of Apamarga



Obtained Ash



After Filtration



Evaporation Of Ksharajala



Obtained Apamarga Kshara

Table No. 2: KSHARA GUN^[11,132,13]

Rasa	Katu
Virya	Ushna
Varna	Shukla
Guna	Saumya, tikshna, agneya
Doshaghanata	Tridoshaghanata
Karma	Dahan, pachana, darana, vilayana, shodhana, ropana, shoshana, stambhana, lekhana

Table No 3: Pharmaceutical study of *Apamarga kshara*.

Sr. No.	Testing parameter	Result
1	Moisture	4.20%
2	Ph value	9.93
3	Specific gravity	1.0251
4	Total ash	76.09%
5	Acid insoluble ash	4.32%
6	Water soluble extract	21.20%
7	Alcohol soluble extract	11.30%

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 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 *dhatu*s, 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 dravya*. 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 *yappa* 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 considered as wealth and a strong weapon in *Ayurveda* pharmacopoeia. *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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