INTRODUCTION

Ayurveda recognises from the primitive time that certain clinical condition will require surgical intervention (shastrapranidhana) for complete or better cure. Charaka Samhita, predominantly a Kayachikitsa (Internal Medicine) treatise, has also stated that the diseases like gulma(abdominal gaseous tumours), arsha(haemorrhoids), bhagandar (fistula-in-ano), ashmari (calculi) may require surgical intervention.1 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 or parasurgical substances and procedures. An anushastra is defined as hinashastra (sub-surgical instrument) or shastra sadrushya (similar to a surgical instrument), that is any substance or procedure that can be used like a surgical instruments but with lesser invasion and stress on the patients. Sushruta has enumerated fourteen such anushasstras, which include bamboo blade, crystal, agnikarma (cautery), jalaaukavacharana (leech application) and kshara pronidhana (caustic application). These are to be used depending upon both patient and disease condition, specifically indicated in paediatric population, people who are afraid of surgical procedures and in the absence of surgical instruments.

Kshara or caustic substances is considered as one of the most important means of parasurgical means because kshara can produce excision, incision, scraping and can pacify all three doshas. Kshara sourced from different plants are described in Ayurveda to be used in different ways to manage various diseases, which includes many of the ano-rectal conditions like arsha (haemorrhoids), bhagandar (fistula-in-ano), nadi vrana (sinus).

The commonest drawback in management Ano-rectal disorders is their recurrence and therefore physicians from the ancient times have tried to manage these conditions in different ways. This is one segment for which maximum types of surgical, para-surgical and medicinal applications are described indicating the complexity of the condition. Kshara application and in the recent era modified kshara application in the form of ksharasutra in ano-rectal diseases has become a common practice in Ayurvedic surgical parlance. Ksharasutra is a novel drug delivery system in which a thread smeared with kshara (caustic substance) is applied to induce both mechanical and chemical cutting and healing. No direct reference of Ksharasutra is found in Sushruta for the treatment of fistula, but he as indicated a medicated thread in the treatment of Nadiivrana.2 Vagbhatta has described to use thread smeared with kshara in the treatment of nadi.3 Chakradatta has referred to a medicated thread coated with Euphorbia nerifolia and Curcuma longa powder in the treatment of arsha.4 Based on these clues Prof. Deshpande and Sharma through their pioneering work developed a modified ksharasutra for the management of fistula.5 This ksharasutra has become so popular that almost 90% the Ayurvedic surgical intervention is done through this. The efficacy and benefit of this ksharasutra is now well established. But, it has certain common problems like pain, burning sensation and itching6, which needs to be
All these plants have textual description as potential kshara dravya but each plant has its own Rasapanchaka. Thus, the resultant kshara could have different set of pharmacological properties and actions. Therefore, it is possible to use different ksharas in different patients to minimise the commonly encountered undesirable effects like pain, burning, itching, etc, while without compromising the primary objective of managing fistula-in-ano.

**Method of preparing pratisaraniya kshara**

The source plants of kshara should be collected in autumn season from the foot hills or forest area. The collector should maintain personal hygiene and collection should be made from an ideal land and from a matured plant

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S. NO Name Botanical Name Family

01 Mushkka Elaeodendron glaucum Pers. Celastraceae
02 Kutaja Holarrhena antidysenterica Linn. Apocynaceae
03 Palash Butea monosperma Linn. Fabaceae
04 Ashwakama Diptercarpus turbinatus Gaertn.F. Dipterocarpaeceae
05 Bhringradhak Erythrina variegata Linn. Fabaceae
06 Bibhitaka Terminalia belerica. Roxb. Combretaceae
07 Aravagadh Cassia fistula Linn. Caesalpinioideae
08 Tilwaka Symlocos racemosa Roxb. Symlocaceae
09 Arka Calotropis procera(Alt)R.Br. Asclepiadaceae
10 Snuh Euphoria nerifolia Linn. Euphorbiaceae
11 Apamarg Achyranthes aspera Linn. Aamaranthaceae
12 Patla Stereospermum suaveolens DC. Bignoniaceae
13 Nakatmal Pongania pinnata Pierre. Fabaceae
14 Vrusha Adathoda vasica Nees. Acanthaceae
15 Kadali Masa Saptimitu Linn. Musaceae
16 Chitrika Plumbago zeylanica Linn. Plumbaginaceae
17 Putka Holoptela integrifolia Plantch. Ullmaceae
18 Ashphota Hemidesmus indicar R.Br. Apocynaceae
19 Ashwammarak Nerium indicum Mill. Euphorbiaceae
20 Saptachhada Alstonia scholaris R.Br. Apocynaceae
21 Agnimanthu Premna mucronata Roxb. Verbenaceae
22 Gunja Abrus precatorius Linn. Fabaceae
23 Kodiakal Luffa acutangula Roxb. Cucurbitaceae
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source. The collector should offer prayers and do certain rituals to get the desired results from the kshara. All the five parts of a plant i.e. root, stem, flower, leaves and fruits should be collected and cut in to small pieces. These small plant pieces should be allowed to dry avoiding direct sun light. When completely dry, the plant pieces are kept on a clean pucca platform situated in an open place without exposure to direct wind. The pile of dry plant parts is put to fire on this platform and is allowed to burn completely. The remnant ash are allowed to cool down on its own and then collected in a clean vessel. Classically, it is advised to burn the plant parts with dried sesame plants and to throw lime stones in to the fire while burning. These burnt lime stones should be collected and kept separately to be used during the second stage. The collected ash is dissolved in six times of water. Even if Sushruta has advised cow urine as an alternate dissolving medium, but in context of ksharasutra and its application in fistula-in-ano cow urine is avoided because it is strongly teeksha and can cause irritation. The ash dissolved in six times water is allowed to settle down and the supernant fluid is collected and kept in a separate vessel. The residue is again mixed with six times water and the supernant part is collected. The fluid thus collected should be filtered is through a cloth for 21 times or through a bi-fold Whatman filter paper for two to three times. This resultant filtrate liquid is clean, free from any suspended material and brown in colour. This filtrate is known as ksharodaka. This ksharodaka is evaporated slowly on a moderate flame with continuous stirring taking care that the bottom part of kshara is not burn. When the liquid becomes thick like paste the flame is put off and the kshara is allowed to cool on its own. The resultant kshara is known as midu kshara and is usually used in ksharasutra. This is white in colour and consists of brittle flakes which can be easily powered. Madhyam and tiksha kshara can be prepared by adding appropriate prativayya (strong alkaline substances like limestone, pearl shell etc) but since these are not used in ksharasutra they are not discussed here.2

**Method of Kshara sutra preparation**

The prepared kshara, snuhi ksheera (latex collected from *Euphorbia nerifolia*) and haridra (*Curcuma longa*) powder is smeared on no. 20 surgical thread. These materials are smeared on the thread as 21 coatings in following manner. Out of these twenty-one coatings eleven times smearing is done with snuhi ksheera followed by seven times with paste prepared out of snuhi ksheera and kshara and the remaining three coatings are done with paste made out of snuhi ksheera and haridra powder. Snuhi ksheera acts as a binder and since the kshara powder is an excessively hygroscopic material which can absorb moisture when left exposed to the atmosphere to become ineffective, the final three coatings of the latex and turmeric powder prevents direct contact of kshara coatings with the atmospheric air and therefore can be preserved and used for a long time. The thread is allowed to dry after each smearing and the next smearing is done after the thread is dry. This type of ksharasutra has been found to command the maximum efficacy.3

**Mode of action of kshara sutra in fistula-in-ano**

Ksharasutra has a multiple mechanism in healing the fistula track owing to the multiple medicaments presented with it. The thread itself acts as a mechanical and gradual cutter. The *E. nerifolia* latex smeared onto it produces debridement of tissue by way of the proteolytic enzymes present in it. The kshara dissolves fibrous tissues and helps in draining out the contents of the track to provide a conducive healing surface. *C. longa* has local antimicrobial and anti-inflammatory activity. All these activities play a role in simultaneous debridement, cutting and healing of the track.7

**Common problems associated with ksharasutra management**

Even if there is no organized collective data available to indicate the incidence rate of commonly associated clinical problems during and after ksharasutra application, but reports of various studies reveal the most common problems as of ksharasutra application as pain, itching and burning.

**Properties and Actions of Kshara Source Plants**

A compiled review of pharmacological properties, actions and recent findings in reference to wound healing is presented below.

**KRISHNAMUSHKAKA**

**Botanical source** - *Elaeodendron glaucum* Pers.

**Family** - Celastraceae

**Morphology** - A small tree

**Habitat** - In most of the parts of India

**Attributes**

Rasa - Katu, Tikta
Vipaka - Katu
Dosha - Kaphavataghna

**PALALSH**

**Botanical source** - *Butea monosperma* Ham.

**Family** - Fabaceae

**Morphology** - A tree 13 to 15 meters tall with 1.5 to 2 meters girth at the base, flowering in the spring and fruiting in summer.

**Habitat** - All over India

**Attributes**

Rasa - Tikta, katu, kashaya
Vipaka – Katu
Gunas - Sara, Snigdha
Dosaghnata - Flowers-

**External uses**

1) Bark decoction used for pariseka in vrana, arsha.
2)Leaf and flower being shothahara and vedanasthapan.10

**Recent studies**

1) The alcoholic bark extract accelerated wound healing in full thickness excised rats.11
2) The aqueous and alcoholic extracts of *B. monosperms* significantly increased wound contraction, epithelialization time, tensile strength, hydroxyproline content and granuloma weight in incised and excised wound of rats. The granulation tissue weight and hydroxyproline content in the dead space wounds were also increased significantly in treated animals compared with control.12
3) Plant is being used for treatment of wounds and burns by tribals and folklore practiced areas in India.13
ARAGVADHA
Botanical source - Cassia fistula Linn.
Family - Fabaceae
Morphology - 8 to 10 meters tall tree
Habitat - All over India
Attributes
Rasa-Madhura Vipaka- Madhur9
Veerya- Sheetu Gunas- Guru
Doshaghnata- Pittaghn8
External uses
1) Alcoholic extract of cassia fistula Linn. leaves showed better wound closure, improved tissue regeneration at the wound site and supporting histopathological parameters pertaining to wound healing.14
2) Plant is being used for treatment of wounds and burns by tribals and folklore practiced areas in India.13

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KARANJ (Nakatalam)
Botanical source - Pongamia glabra Vent.
Family - Fabaceae
Morphology - 25 to 50 feet tall trees, flowering in May and June fruitition in Dec and January.
Habitat - Central and Eastern Himalayas up to 1300 meters and in the costal reagion of South India.
Attributes
Rasa- Katu Vipaka- Katu
Gunas- Laghu and Teekshna Veerya- Ushna
Doshaghnata- kaphavataghna8

External uses
1) Bark and leaves-germicidal and antipruritic.
2) Seed oil-germicidal clenases and heals wounds.
3) Paste of leaves is useful in vranashodhana.10

Recent studies
1) The juice of leaves of Pongamia pinnata applied on the wound.15
2) In ethnobotanical study of Tirunelveli hills in Southern India plant is being used on wounds & related injuries such as cuts, burns, bruises caused by external injury, boil, sores, abscess.16

TILVAK
Botanical source - Symplcocas racemosa Roxb.
Family - Symplcaceae.
Morphology - A medium sized evergreen tree.
Habitat - North east India and upto chhota Nagpur in Bihar and Malbar.
Attributes
Rasa- Kashaya Vipaka- katu9
Gunas- Laghu Veerya- Sheeta
Doshaghnata- kaphaghn, pittaghn8

External uses
1) The juice of leaves of Symplcocas racemosa Roxb. showed wound healing activity effectively in experimental models.17
2) In ethnobotanical survey of Jalgaon District of Maharashtra (India) this plant was listed as a wound healing remedy.18

PATALA
Botanical source - Stereospermum suaveolens DC.
Family - Bignoniacae
Morphology - Tree about 10 to 20 meters tall, flowering in greeshma ritu and fruitition in winter.
Habitat - Growing in marshy places of Bihar, Bengal, Himalayan Tarai, Tamilnadu and Kerala.
Attributes
Rasa- Tikta, Kashaya Vipaka- katu
Gunas- Laghu, ruksha Veerya- Anushna
Doshaghnata- Tridoshshhara8

External uses
1) Paste of leaves applied on wounds being vedanasthapana and vranaropana.
2) Paste of seeds be used in hemicrania.10

VASA (Vrishka)
Botanical source - Adhatoda vasica.Nees
Family - Acanthaceae
Morphology- A thick shrub about 1 to 3 meters tall, flowering in Feb to March.
Habitat - All over India upto a height of 1.5 thousand
Attributes
Rasa- Tikta, Kshaya Vipaka- Katu
Gunas- Laghu Veerya- Sheeta
Doshaghnata- kaphapittaghn, vatakara.8

External uses
1) Leaf paste is vedanasthapana and shothahara.
2) Leaf juice is disinfectant.10

Recent studies
1) The methanolic extract ointment of Adhatoda vasica showed a significant effect in excision wound model as comparable to standard drug and other two other extracts of ointment.19
2) Methanolic extract of A.vasica leaves showed remarkable wound healing activity with the ointment formulation at 1% concentration as compared to ethanol, ethyl acetate, chloroform and hexane extract of leaves of A. vasica in mice as a preclinical study.20

AGNIMANTHA
Botanical source - Premna mucronata.Roxb.
Family - Verbenaceae
Morphology - Trees about 8 to10 metrs tall, flowering in April-May, fruitition in May-June.
Habitat - U.P, Bihar, Bengal, on banks of Ganges, in hilly region from Kumaun to Bhutan, Sahhyadri ranges and Konkan.
Attributes
Rasa- Tikta, Katu, Kashaya, Madura Veerya- Ushna
Gunas - Ruksha, Laghu Vipaka- Katu9
Doshaghnata- kaphapitaghna8

External uses
Leaves are Shotha and shoolahara.10

Recent studies
In ethnobotanical survey of Jalgaon District of Maharashtra (India) this plant was listed as a wound healing remedy.17
Habitat - All over India in dry land

Attributes
- Rasa: Katu, Tikta, Vipaka: Katu
- Gusas: Tiksha, Veerya: Ushna
- Doshaghnata: Kaphavataghna

External uses
- 1) Kashara is used in urdhwajatragurarogas.
- 2) Decoction is used as abiseka in kandu and pitika.

Recent studies
- 1) The aqueous extracts of leaves of *Achyranthes aspera* was found to be more effective for its wound healing activity as compare to ethanolic extract.
- 2) *A. aspera* Linn. leaf extract showed significant wound-healing activity when compared with control and was as effective as soframycin (standard cream for comparison).

**SNUHI**

Botanical source - *Euphorbia neriifolia* Linn.

Family - Euphorbiaceae

Morphology - A fleshy shrub or tree about 3 – 6 meters tall

Habitat - All over India and Bhutan

Attributes
- Rasa: Katu, Vipaka: Katu
- Gusas: Guru, Tiksha, Veerya: Ushna
- Doshaghnata: kaphavataghna.

External uses
- 1) Leaf and stem are used as vedanasthapan.
- 2) Ksheera is used as lepa on arshankuras.

Recent studies
- 1) Hydroalcoholic extract of *E. neriifolia* leaf showed wound healing activity on rat.
- 2) Topical application of 0.5% and 1.0% sterile aqueous solution of the aq. extract of the latex of *Euphorbia neriifolia* facilitates wound healing process by increasing epithelisation, angiogenesis, tensile strength and DNA content in surgically produced cutaneous wound of guinea pig.
- 3) Plant is being used for treatment of wounds and burns by tribals and folklore practiced areas in India.

**CHIRABILWA (Putika)**

Botanical source - *Holoptelia integrifolia* Planch.

Family - Ulmaceae

Morphology - 25 to50 feet tree, Flowering in Feb to March and fruitition after flowering.

Habitat - All over India

Attributes
- Rasa: Tikta, Kashaya, Gusas: Laghu, Ruksha
- Veerya: Ushna, Vipaka: Katu
- Doshaghnata: kaphavataghna

External uses
- Paste of bark is useful in oedema.

Recent studies
- The methanolic extracts of *Holoptela integrifolia* (Roxb.) leaves and stem bark showed wound healing activity by higher breaking strengths and higher hydroxyproline content suggested higher collagen re-deposition.

**KRUTAVEDHANA**

Botanical source - *Luffia acutangula* (Linn.) Roxb.

Family - Cucurbitaceae

Morphology - A creeper

Habitat - All over India

Attributes
- Rasa: Madura
- Gusas: Laghu, Ruksha, Teekshna.
- Veerya: Sheeta
- Vipaka: Katu
- Doshaghnata: Aggrevate kaphavatta and Pittaghnah

Recent studies
- Methanolic extract of fruit showed significant anti proliferative activity on human lung adenocarcinoma epithelial cell line.

**KUTAJA**

Botanical source - *Holarrhena antidysenterica* Linn.

Family - Apocynaceae

Morphology - Trees of 9-12 meters, whitish smoky bark, flowering in May – June, fruiting in winter

Habitat - All over India upto 1.5 thousand meters

Attributes
- Rasa: Katu, Kashaya
- Gusas: Ruksa
- Veerya: Sheeta
- Doshaghnata: Pittaraktakaphaaghna

External uses
- 1) Vranaropana.
- 2) Its decoction should be used in dressing of wounds.

Recent studies
- 1) In ethnobotanical survey of Jalgaon District of Maharashtra (India) Plants was used as wound healing remedy.
- 2) Plant is being used for treatment of wounds and burns by tribals and folklore practiced areas in India.

**ASHWAKARNA**

Botanical source - *Dipterocarpus turbinatus* Gaertn. f.

Family - Dipterocarpaceae

Morphology - Big tree grows upto 40 meters, stem bark is 2.5 - 5 cm thick.

Habitat - East India and Islands of Andaman

Attributes
- Rasa: katu, Tikta
- Gusas: Laghu, Snigdha
- Veerya: Ushna
- Doshaghnata: kaphavataghna

Recent studies
- Its oleo resin is used in ulcer as local application.

**NIMBA**

Botanical source - *Azadirachta indica* A. Juss.

Family - Meliaceae

Morphology - Trees up to 14 to 16 meters with smoky black bark red from inside, flowering in March-April and fruiting in July.

Habitat - All over India especially in north and western India

Attributes
- Rasa: Tikta
- Gusas: Laghu
- Veerya: Sheeta
- Doshaghnata: kaphapittaghna

External uses
- 1) Varanashodana
- 2) Nimba taila is used in treating infected wounds and diabetic ulcer.
**Recent studies**
Plant is being used for treatment of wounds and burns by tribals and folklore practiced areas in India. **BIBHITAK**

**Family** - Combretaceae

**Morphology** - Trees 20-26 meters tall, stem straight hard and dark Brown, flowering in May and fruiting after an year

**Habitat** - All over India specially in lower hilly regions

**Attributes**
Rasa - Kashaya  
Veerya - Madura  
Gunas - Ruksha, Veerya - Ushna  
Doshaghnata - kaphapittaghna

**External uses**
1) Shothahara and Vedanasthapana  
2) Paste of fresh fruit or seed oil is used in edema and Pain  
3) Dry powder is used in traumatic wound.

**Recent studies**
1) In ethanobotanical study of Tirunelveli hills in Southern India plant is being used on wounds & related injuries such as cuts, burns, bruises caused by external injury, boil, sores, abscess.  
2) Latex of *Calotropis procera* enhanced the wound healing process on four full thickness excisional wounds of 8.0 mm diameter were inflicted on the back of guinea pigs twice daily for 7 days.  
3) Plant is being used for treatment of wounds and burns by tribes and folklore practiced areas in India. **SARIVA**

**Botanical source** - *Hemidesmus indicus*. R. Br.
**Family** - Asclepiadaceae

**Morphology** - A twining creeper about 1.5-3 meters tall, flowers green from outside and brinjal coloured from inside, roots and stem redish from outside and white inside

**Habitat** - All over India

**Attributes**
Rasa - Madhur  
Vipaka - Madhur  
Gunas - Guru, Snigdha, Veerya - Sheet  
Doshaghnata - Tridoshashagna

**External uses**
Dahapraschaman and Shothahara.

**Recent studies**
In ethnobotanical survey of Jalgaon District of Maharashtra (India) Plants was used as wound healing remedy. **SAPTPARNA (Saptachhada)**

**Botanical source** - *Alstonia scholaris*. R. Br.
**Family** - Apocynaceae

**Morphology** - Tree 13-16 meter tall, bark white from outside and yellow Inside, flowering in October and fruiting in winter.

**Habitat** - In Himalaya upto 1000 meters height, Bengal and Western ghats.

**Attributes**
Rasa - Kashya  
Vipaka - Karu  
Veerya - Ushna  
Gunas - Snigdha  
Doshaghnata - Kaphavataghna

**External uses**
1) Varanashodhana, Varanaropana and Shothahara.  
2) Used in ulcers due to syphillis.  
3) Leaf paste should be applied to piles and wounds.

**Recent studies**
1) The latex of *Alstonia scholaris* R.br showed wound healing acivity.  
2) In ethnobotanical survey of Jalgaon District of Maharashtra (India) Plants was used as wound healing remedy.

**CHITRAKA**

**Botanical source** - *Plumbago zeylanica*. Linn.
**Family** - Plumbaginaceae

**Morphology** - Small perennial herb about 0.5-1 meter tall, flowering from Sept - Nov and fruiting after that.

**Habitat** - White variety grows abundantly in Bengal, U.P, South India

**Attributes**
Rasa - Katu  
Vipaka - Katu  
Gunas - Laghu, Ruksha, Veerya - Ushna
Doshagnata- Kaphavataghna

**External uses**
Lekhana and Visphotajanana.10

**Recent studies**
Plant is being used for treatment of wounds and burns by tribals and folklore practiced areas in India.13

**GUNJA**

**Botanical source** - *Abrus precatorius*. Linn.

**Family** - Fabaceae

**Morphology** - A Shrubby creeper, root and leaves are sweet in taste, flowering in Nov and fruiting in Jan.

**Habitat** - All over India over 12000 meters

**Attributes**
Rasa- Tikta, Kashya Vipaka- Katu Gunas- Laghu, Ruksa, Tikshna Veerya- Ushna

Doshagnata- Seed- Kaphavataghna, Leaf- Tridoshaghna9

**External uses**
1) Vedanasthapana and Varanaropana.
2) Paste should be applied to Vranashotha10

**Recent studies**
1) In ethnobotanical survey of Jalgaon District of *Fistula* patients and its effectiveness in the management of disease revealed a distinct shift in approach. Sushruta has advised to use ingredients of all the 23 source plants of kshara to prepare kshara. The commentators suggest 2 types of composition of source plants of kshara. One, Krishna Mushakha should be 50% and other plants form the rest 50%. The other method suggests all plants should be taken in equal quantity. But there is unanimity in using all the source plants in preparation of kshara. The classical kshara was described as tridoshaghna and described to have katu rasa with lavana anurasa because they are prepared from so many plants. Although Sharma S. K. et al has stated that the source plants have no role to play in expression of the rasa of the resultant kshara and its action on doshas,7 but Sushruta’s view seems to be different as he has clearly stated that kshara pacifies three doshas due to its various component plants.3 Logically, albeit the source plants are burnt but their initial chemical and pharmacological behaviour could influence the ultimate composition of the kshara. In other words kshara prepared out of amaparga and kshara prepared from the combination of all source plants or any other individual source plant should have different chemical and pharmacological actions. An analysis of the source plants described by Sushruta reflects their different rasa and dosh action. (Table 2) The commonly used amaparga kshara pacifies kapha and the incidence rate of itching in ksharasutra application cases is comparatively lower. From Dravyaguna point of view the source plants will definitely influence the end products. Therefore it is quite possible that kshara made out of a vata shamaka plant like kadali should produce less pain and kshara made out of Pitta shamaka plant like kutaja should produce less burning sensation.

**Table 3**: Common Problems Associated with Fistula-in-Ano on the basis of Dosh Predominance

<table>
<thead>
<tr>
<th>Dosa</th>
<th>Condition</th>
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<tbody>
<tr>
<td>Vata</td>
<td>Ruja</td>
</tr>
<tr>
<td>Pitta</td>
<td>Daha</td>
</tr>
<tr>
<td>Kapha</td>
<td>Stava, Kandu</td>
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The commonly seen problems associated with ksharasutra application can be classified on basis of dosha involvement (Table 3) and accordingly different source plants based on their dosha shaman activity can be tried on patients categorised on basis on their dosha prakriti. A preliminary review of the ayurvedic pharmacological actions and contemporary researches done on the various kshara source plants show wound healing, anti-inflammatory, antimicrobial activity shown by many of these plants. These activities up to a large extent explain the efficacy of ksharasutra. This gives a scientific basis to explore different kshara source plants for ksharasutra application.

**Rational selection of drug depends upon the prakriti of the patient and dosha involvement of the disease e.g. in Vataj prakriti and with symptoms like ruja (pain) a vata shamaka plant is preferred, in Pitta prakriti and with symptoms like daha, raktata, visragandha (burning,
CONCLUSION
The above collection reveals almost all the plants can produce kshara whose are pharmacologically similar to apamarg kshara. Each plant has its own advantage in terms of geographical occurrence, feasibility of pharmaceutical processing, drug-patient interaction and user suitability. Although sporadic evidence is available for their clinical use, a structured research programme involving each drug should be planned to conduct trial and explore the practical differences among them. This will establish prescription guidelines for using ksharsutra to assess their efficacy.

REFERENCES