REVIEW ARTICLE: PHARMACEUTICAL UTILITY OF KSHARA (ALKALIES) IN RASASHASTRA

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ABSTRACT
Ksharas are alkaline materials, derived from different plants. Even they have animal and mineral origin. Pertaining to Rasashastra (Iatro-Chemistry and Ayurveda Pharmaceutics), Kshara (Alkalies) plays an vital role in the Processing and Preparation of Rasadravyas (Metal and Minerals). Tankana kshara (Borex) is considered as the universal Antidote for almost all Sthavara vishas (herbal poisons). Among All Sharp instruments and accessory instruments, Alkalies are the best as it performs many actions such as Incision, Excision, etc even in inaccessible areas. Success can be achieved by its use in grave diseases and also because it can be used in the form of drink. so Ksharas are having more importance in the Rasashastra.

Keywords: Kshara, Rasashastra, Rasa dravyas, Kshara, Rasashastra, Rasa dravyas

INTRODUCTION
Ksharas are alkaline materials, derived from different plants. Even they have animal and mineral origin. Because of their chedana & bhedana guna, (Cutting and Breaking quality) these ksharas are included under Anushastra. [1] These are named as ksharas because of their corrosive nature (kshara guna). Some Acharyas have included kshara in Madhuradi rasa (Taste), but Atreya Punarvasu concluded it as dravya,[2] not a Rasa, because kshara means the flowing capacity & it is the action of a dravya. Clinically Application of Kshara reduces bleeding and chances of reoccurrence of the diseases are very rare. An Alkali administered by an intelligent physician subsides all serious diseases in which its use is recommended. Ksharas are having more importance in the Rasashastra. They play vital role in processing of Rasadravyas.

An Alkali is a substance that has a high pH when in solution and tends to neutralise acids. The amount of Alkali available in the body to act as a buffer moderating changes in pH is called the alkali reverses of standard Bicarbonate. A high Alkali reverse is particularly important for those involved in high intensity activities lasting up to three minutes (Ex. 800
meters run). The Bicarbonate ions helps to neutralise Lactic acid produced during Anaerobic Respiration.

AIM OF THE STUDY
1) To know the Pharmacotherapeutics of Ksharas.
2) To know the importance of kshara in Rasashastra.
3) To know the vital Role of Kshara in Rasashastra.

DERIVATION AND DEFINITION OF KSHARA
According to Sanskrit-English dictionary, kshara indicates corrosive, caustic acid, pungent and saline. [3]
According to Shabda kalpa druma, Kshara means the one which is having corrosive property.[4] Acharya chakrapani has given that kshara means the one which moves/flows downwards. Kshara has the property of ksharana guna. So it slowly brings the vitiated doshas (humors) downwards, as charaka states.[5]
According to Sushruta, kshara means the dravya which is having ksharana guna.[6] For the same, Dalhana says, ksharana means mobilizing or removing the vitiated Twacha(skin), Mamsa(Muscles), etc dead tissues from the body.

TYPES OF KSHARA
A. 1. Paniya Kshara.(Milder Alkali)
2. Pratisaraniya Kshara.(Caustic Alkali)
B. 1. Mrudu Kshara.(Mild)
2. Madyama Kshara.(Moderate)
3. Tikshna Kshara.(Sharp)
C. 1. Dwikshara
2. Ksharatraya
3. Ksharapanchaka
3. Vanaspatija (Plant)- Apamarga kshara, Yavakshara.

SHELF LIFE PERIOD OF KSHARA
Depends upon the method of Preservation Up to 5 Years

ROLE AND IMPORTANCE OF KSHARA IN RASASHASTRA
1. ksharas are having mineral origin such as Tankan (Borex), Surya kshara (Potassium Nitrate).
2. ksharas needs Shodana (Detoxification)
3. The dosage of kshara is less.
4. Ksharas are also more potent like that of Rasadravyas.
5. Ksharas are required in Shodana of Rasadravyas.
6. Ksharas are extracted from Bhasma (Ash), as Bhasma are the important preparations of Rasadravyas.
7. Ksharas are used as Antidotes for complications of Rasoushadis.
   As these ksharas are more useful in the processing of Parada (Mercury) and other Rasadravyas, so these are included in Rasashastra.[7]

UTILITY OF KSHARA (ALKALIES) IN RASASHASTRA
Ksharas are used widely in Rasashastra in the processing of Parada and other Rasadravyas. Mainly used in Parada samskara, Rasadravya sodhanartha, maranartha, satvapatanartha, dravanarth, and Rasoushadhi nirmanarth. Even ksharas are used as antidote for visha dravyas.
1. Parada samanya shodana:[8] During samanya shodana (General purification) of parada, parada is triturated with Nagavallli patra rasa (Betel leaf), Ardraka rasa(Wet ginger) and Kshara traya (Sarja kshara, yavakshara and tankana kshara) for 3 days.
2. Parada samskara:[9] In Deepana samskara of Parada, Tankana kshara is used.
3. Parada kshara bhanda:[10] In Kshara bhanda of Parada, kshara dravyas are used.
4. Rasoushadhi nirmanarth:
   Ksharas are used in the preparation of Rasoushadhies (compound formulations) for exam-
Shudda Tankana is used in the preparation of following Rasayogas – Anandabhairava Rasa, Mrutyunjaya Rasa, Tribhuvana Keerthi Rasa, etc and even kshara parpati.

5. **Ksharas are included in different vargas:**
   a. Ksharas are separately grouped in one Varga called kshara varga, which includes – Sarja kshara, yava kshara, Tankana kshara and Surya kshara.
   b. Even with kshara, different groups are made as such, dwikshara, trikshara, kshara panchaka and ksharastaka.[11]
   c. Kshara is important drug in Dravaka gana and Mitrapanchaka. (Metal liquefying drugs)[12]
   d. Vida varga includes kshara – [13]

### UTILITY OF KSHARA IN SHODHANA AND MARANA OF RASA DRAVYAS:

1. *Vaikrant* (Tourmaline)[14] - Sour liquid like kanji or cows urine or decoction of kulattha (Horse gram ) or juice of kadali (Banana) kanda are taken and Panchalavana (Five types of salts), Yavakshara and Tankana are added to this solution is taken in Dola yantra and boiled in it for 3days.

2. *Shilajetu* (Mineral pitch)[15]- Shilajatu is washed with kshara jala.

3. *Haratala* (Yellow Arsenic)[16] - Haratala is subjected to boiling in Dola yantra in one of the liquids i.e in the juice of kushmanda (Pumkin) or solution of Tilakshara or Churnodaka (lime water) to purify it.

4. *Gouripashana* (White Arsenic)[17], - Swedana (Steaming) in Dola yantra containing Tankana kshara and Godugdha (Cowsmilk).

5. *Ratna* (pravala) (Gem stone)[18] - Pravala can be purified by boiling in Dola yantra in the ksharavarga.

6. *Sasyaka* (Blue vitriol)[19], - Equal quantities of Sasyaka, Gandhaka (Sulphur) and Tankana are ground with juice of Lakucha (Variety of Lemon), confined to crucible and given kakkuta puta (Measure of Heat)to obtain the Bhasma of Sasyaka.

7. *Haratala* (Yellow Arsenic) [20]- Shudha Haratala is subjected to Mardan (Trituration) along with Punarnava Rasa for one day. Ball is made and dried. Pot is taken and half of it is filled with Punaranava kshara then ball is put in the pot and again Punarnava kshara is filled up to the neck and then its subjected to heat for 5 days.

8. *Visha*(Poisons)[21] - In Marana process of Visha, Visha is mixed with equal quantity of Tankana and triturated well.

### UTILITY OF KSHARA IN SATVAPATANA AND DRAVANA OF RASA DRAVYAS

1. *Sasyaka* (Blue vitriol) [22] - Purified Sasyaka powder and one fourth of purified Tankana is mixed and kept in karanja (pomgemia) oil for one day. Then it is taken out and a ball is prepared out of it. Confining it into a crucible, heated in intensive fire made of Coal. This yields the Sattva which is red like Indragopa(red insect).

2. *Bhunaga* (Earth worm)[23] - Equal quantity of Guda (Jaggery), Guggulu (Resin), Laksha (Resin), Una (Wool), Fish, Pinakya (Seasamum paste), Tankana, are taken and Mardan is done and subjected to sattvaptana.

3. *Kasisa* (Green vitriol)[24] - Sattva is obtained from kasisa, if it is subjected to Sattvapatana like that of Kankshi (Allum). (it is ground in kshara like Yavakshara, Sour substance like kanji etc. a ball is prepared, kept in crucible and heated intensively in the fire, Sattva can be obtained definitely.

4. *Kankshi* (Allum)[25] - it is ground in kshara like Yavakshara, Sour substance likekanji etc. a ball is prepared, kept in crucible and heated intensively in the fire, Sattva can be obtained definitely.

5. *Abhraka* (Mica)[26] - Purified Abhraka (Mica) is mixed with quarter quantity of Tankana and
Rubbed with Musali juice. After making the Chakrikas (Flakes) and drying, they are confined in Satvapatna kosthi (Bhatti) and Subjected to intensive heat. This would yield sattva (Essence-metallic portion) of Abhraka.

6. Vaikrant (Tourmaline) [27] - The ksharas of Mocharasa, Morata and Palasha are dissolved in Cow urine and Banana of this solvent is given to Vaikranta powder. Then the bolus of Vajrakanda and Haridra and Powders of Triphala, Tankana, Lakha and Navasadara are added to it and rubbed in Meshashringi juice to prepare a ball. This ball after drying is kept in Andhamusha (Crucible) and heated in intense fire.

7. Ratnas[28]- A ball is prepared by Grinding the drugs such as Hingu, Panchalavana, Ksharatraya, Mamsadrava, Amlavetasa, Navasadar, Ripened Jayapala bija, Bhallataka, Dravanti, Rudravanti, Kshirakakoli, Chitramula, Arka kshira, and Latex of Snuhi. The Ratna having auspicious and superior qualities, are kept inside this ball and covered with leaves of Bhurja and tied with thread. it then kept in the Dola Yantra which is filled with the juices of same drugs as well as kanji and boiled for 3days and 3 nights in the intensive fire.

Kshara as antidote – for Vatsanabha (Aconitum) visha.[29]. Ksharas are used in the preparation of Rasoushadies. Ex:- Kshara parpati

CONCLUSION

1) Alkalies are widely used in Rasashastra because of their corrosive action.
2) Alkalies are used in Shodana, Marana, satvapatana and Dravana of Rasadravyas.
3) Even Alkalies are used in Therapeutics and also as an Antidote.
4) Alkalies play a vital role in the preparation of Rasoushadies.

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