

CRITICAL REVIEW ON SUDHA VARGA AND ITS THERAPEUTIC USES

Review Article

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ABSTRACT

Rasashastra is a branch of Ayurveda pharmaceuticals where drugs of various origin like metals, minerals, marine drugs are employed in therapeutics. *Sudha varga* is one of the drugs of calcium containing group termed under *sudha varga (marine compounds)*, *shuklavarga*, *shwetavarga* which is considered to be oxide of calcium. *Sudha* is categorized under different groups by authors. So in this article we discuss about different *sudha varga dravyas* special characters, types, *shodhana*, *marana*, dose and uses in therapeutics.

Keywords: *Sudha varga*, *shodhana*, *marana*, dose, therapeutic uses

INTRODUCTION: The group of *rasa shastra* drugs with calcium as the main component are grouped under *sudha varga dravyas*. The literal meaning of the word *sudha* is ambrosia, nectar, honey of flowers, water, milk, good drink, beverage of gods etc. but here *sudha* means lime stone which contains calcium. So this group is termed as *sudha varga* because of the drugs included here has calcium in compound form.

In *charaka samhita*, *sudha* has been comprised under *bhauma aushadha*. In *chikitsa sthana*, these drugs are broadly used in various disease conditions. *Rasarnava* and *Rasaratnakara* have entitled this *varga* as *shukla varga*. *Rasamritam* has described these drugs under the heading of *sudha vijnaneeyam* based on chemical composition¹.

Classification of *sudha varga*²

The drugs of *sudha varga* can be classified in three category based upon their sources as follows;

1. **Mineral origin** - *Sudha* (Lime), *Khatika* (Chalk), *Godanti* (Gypsum)
2. **Marine origin** - *Mukta* (Pearl), *Pravala* (coral), *Shankha* (Conch), *Shambuka* (Pila), *Shukti* (Oyster), *Varatika* (Cowrie), *Samudraphena* (Cuttle fish bone)
3. **Animal origin** - *Mrigashringa* (Stage horn), *Kukkutanda twak* (Hens egg shell), *Kurmashti* (Tortoise bone).

1. ***Sudha (lime)*** - It's also called *sudha*, *churna*, *churnaka*, *saudhavilepana*, *shila kshara* in different texts book. It is in form of sedimentary rock made from the deposition of aquatic elements like mollusks, forams, coral and siliceous skeleton fragments etc. calcite and aragonite are the main minerals. Calcium does not occur in natural form but the compound forms are phosphate, carbonate,

sulphate, fluroid etc. *shodhana* and *marana* of *sudha* are not mentioned.

Churnodaka nirmana (lime water)³ – *sudha* 1 part and potable water 240 parts dissolve in water and keep for 12 hours and filter through filter paper in vessel and get *churnodaka*. Properties of *churnodaka* is *krimighna*, *vishaghna* and its therapeutic uses in *krimi*, *atisara*, *amlapitta*, *shoola*, *grahani*, *mukhapaka* etc.

2. Khatika (chalk)⁴ – Its synonyms is *khatika*, *khatini*, *lekha*, *mruttika* etc. *Khatika* is a white, soft, porous sedimentary rock. Calcite is calcium carbonate. It is common to find chert (hard/fine grained sedimentary) or flint nodules embedded in chalk. Chalk can also refer to other compounds including magnesium silicate and calcium sulphate. Chalk is resistant to weathering and slumping compared to the clays with which it is usually associated, thus forming tall steep cliffs where chalk ridge meet the sea. *Khatika* is porous it can hold a large volume of ground water, providing a natural reservoir that releases water slowly through dry seasons.

It has two types *khati* and white *khati*. Its purification methods chalk is dissolved in water, filtered and heated till the powder remains and its incineration process is not mentioned. *Khatika* has *madhura*, *tikta rasa*, *sheeta veerya*, *grahi*. Useful to mitigate *pitta*, burning sensation, ulcers etc. and its dose 1 to 2 *masha*⁵.

3. Godanti (Gypsum)⁶ – Its synonyms is *godantika*, *godana*, *karpurahila*, *shweta* etc. *Godanti* is a very soft mineral compounds composed of calcium sulfate dehydrate, with the chemical formula $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$. The word gypsum is derived from the greek word gypsos chalk or plaster. Gypsum was known in old english

as spear stone, referring to its crystalline projections.

Godanti is moderately water soluble and in contrast to most other salts, it exhibits a retrograde solubility, becoming less soluble at higher temperatures. Gypsum crystals are found to contain water and hydrogen bonding. Its two types transparent and opaque. It is purified (*shodhana*) by washing in hot water. Its incineration process *shuddha godanti churna* ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) is given *Bhavana* (Triturition process) with *kumari swarasa* or *nimbu patra swarasa*, cakes are prepared and *gajaputa* (Heating systems) heat is given to get *godanti bhasma*. In other process *godanti* is subjected to direct fire in smokeless fire in open air. *Godanti bhasma rasa* is *kshariya* (alkaline property), *sheeta guna* (cold property), *sheeta virya* and *karma* is *grahi* (absorbent property), *varnya* (*Rupa Prasadan*), *balya* (Muscle tonic) and *vishaghna* (Antitoxic property). According to *rasa tarangini* its dose is 2 *ratti*.

4. Mrigashringa (Stag horn)⁷ – its synonyms are *mrigashringa*, *aenshringa*, *mrigavishana*, *harinashringa* etc. mostly deer have antlers, which are not true horns. When fully developed, antlers are dead bone without a horn or skin covering; They are borne only adults and are shed and re grown each year. Chemically it is calcium phosphate $\text{Ca}_3(\text{PO}_4)_2$.

Mrigashringa should not be affected by germs, long, heavy, hard and having many branches of small horns in *shodhana* process of *mrigashringa*, *ashuddha mrigashringa* boil with *takra* or *kanji* for 3 days and get *shuddha mrigashringa* and it is incinerated by two methods; *antardhooma vidhi* and *bahirdhooma vidhi*.

Antardhoom vidhi - this method is better than *bahirdhoma* method. *Shuddha mrigashringa* cut into small pieces, subjects to *puta*, collect and powder the material, rub with *Arka ksheera*, subjected to *puta* for 3 times and collect *mrigashringa*.

Bahirdhoom vidhi – *Shuddha mrigashringa* heat in open air and convert into powder form than rub with *arka ksheera* and subject to *puta* for 3 times and white coloured *mrigashringa bhasma*.

Mrigashringa bhasma doses are 2 to 6 *ratti* and its therapeutic uses in *hrid shoola*, *parshvashula*, *jvara*, *kasa*, *shwasa*, *balya*, *kantivardhaka* etc.

5. Shukti (Mother of pearls)⁸ - According to *rasa tarangini*, *shukti* is of two types; *mukta shukti*, *jala shukti*. *Mukta shukti* is available in the sea shores of southern parts of India and Srilanka. *Jala shukti* is available in almost all ponds, rivers and also in the sea.

Jala shukti - It is white in colour and smooth. The valves are flat and nearly equal in size. The inner surface is white, smooth and shine. Its length varies from 4 to 6 inches and weight varies from 20 to 50 gm. According to size, a lot of different varieties of *jala shukti* are available in the market today.

Mukta shukti – It is a small, hollow, ovate excavation in which the animal with a soft and fleshy sub-orbicular body is enclosed. The shell has a short hinge at one end and opens into two valves, one shallow and the other deep which is found adhering to rock. The length of *mukta shukti* varies from 1 inch to 3 feet and the weight ranges from 50gm to 50kg.

Formation of oyster shell – Pearls are formed in a pearl sac or cyst within the body of the mollusks. The cyst is lined with cells of similar type to those coating

the mantle or fold of skin which envelopes the organism, the normal function of which is to build up the protective shell. The cell have the power of secreting the brown chitinous material known as conchiolin which forms the outer coating of the shell and a membranous framework for the other deposit like calcium carbonate either in coarse columnar form as calcite or as thin layers of aragonite, which form the smooth lustrous lining to the shell.

Shodhan of shukti – Method 1 - *ashuddha shukti swedana* with *jayanti swarasa* for 3 hours and get *shuddha shukti*.

Method 2 - *ashuddha shukti swedana* with *amla dravyas* for 3 hours and get *shuddha shukti*.

Marana of shukti – Method 1 - *shuddha shukti* convert into small pieces and subjected to *puta* and get *shukti bhasma*.

Method 2 - *Shuddha shukti* rub with *kumara swarasa* and subject to *puta* and get *shukti bhasma*.

Properties of shukti – It has *katu* and *madhura rasa*, *snigdha guna*, *deepana* and *ruchikara karma*. Its therapeutic use in *shoola*, *hrid roga*, *shwasa*, *pliha roga*, *udarda roga* etc.

6. Shankha (conch shell)⁹ - Conch is a common that is applied to a number of different medium to large sized sea snails. The term generally applies to large sea snails that have a high spire and a siphonal canal (come to a point at both ends of the shell). True conches are marine gastropod molluscs in the family strombidae specially in the genus strombus and other closely related genera such as eustrombus. Chemically it is calcium carbonate.

The *shankha* (conch shell) which is round bodied with soft external surface, which has small opening towards the base, which is clean and clear like full moon, and the one, which is lengthy and heavy is considered as the best sample of *shankha* used for therapeutic purpose.

Types - as per *rasa shastra* text *shankha* is of two types a) *Dakshinavarta shankha* b) *Vamavarta shankha*

a) ***Dakshinavarta shankha*** - it is rarer variety of conch shell. Since it is not abundantly available, it is considered ausidered auspicious and used in temples to blow during prayers. Therapeutically, it can mitigate all the three doses. It is believed to alleviate the poverty of the society.

b) ***Vamavarta shankha*** – This variety of conch shell is abundantly available. It is the one, which is used for purification, incineration and for all the other compound formulation.

Shankha shodhan – *shankha* is made into smaller pieces and those pieces are tied in a cloth like *pottali*. It is hung in a *dolayantra* containing *jambira nimbu swarasa* as liquid media and subjected for *swedana* of four *yama*. Later the drug in the cloth is washed with warm water, dried and stored as *shuddha shankha*.

Shankha marana- the pieces of *shuddha shankha* are enclosed in *sarava samputa*. The *samputa* is sealed and dried under sun. later it is subjected for one *gajaputa*. When cool on its own, the drug material inside is taken in *khalva yantra* and triturated to fine powder form.

This powder is again enclosed in *sarava samputa* sealed, dried and subjected for another *gajaputa*. When cool on its own the white fine powder inside the *sarava* is collected and stored as *shankha bhasma*. Like this with two *gajaputa*, appropriate *shankha bhasma* can be prepared.

Shankha bhasma dosage and adjuvant – two *ratti* is the general dosage of *shankha bhasma*. It is administered along with *nimbu swarasa* or lukewarm water.

Properties – *shankha bhasma* will have *sheeta* and *kshariya* properties. Its

judicious use cures *amlapitta roga*. It corrects *agnimandhya* and provide strength. It is *balya*, *grahi* and cure *grahini roga*. It is usefull in *parinama shoola* and *tarunya pidika* (acne vulgaris).

7. *Samudraphena* (cuttle fish bone)¹⁰ - *samudraphena* is a hard brittle internal structure found in all members of the family *sepiidae*, commonly known as cuttle fish. Cuttlebone is composed primarily of aragonite. The microscopic structure of cuttlebone consists of narrow layers connected by many upright pillars. In the pas cuttlebone were used in making polishing powder. That powder was added to toothpaste and used as an antacid or as an absorbant. Today cuttlebone are commonly used as calcium rich dietary supplements for caged birds, chinchills, hermits crabs and reptiles.

Synonyms – *Phena*, *saphena*, *phenaka*, *abdhiphena* and *abdhiphena*.

Shodhana - The *samudraphena* is cleaned properly from outside by scraping the adhered saline and alkaline sea sediments. Later it is pounded and triturated in *khalva yantra* to obtain fine powder. This powder is subjected for thorough trituration for a day with *nimbu swarasa* and dried at the end. The fine powder obtained is stored in suitable airtight container as *shuddha saudraphena*.

Dosage and adjuvant - Two *ratti* is general dose. It is administered along with honey or water.

Properties – *Shuddha samudraphena* will have *sheeta virya*. It possesses *lekhana* and *pachana guna*. It enhances the intestinal motility (*sara guna*). It is useful in all types of *netraroga* as it is *chakshusya*. It is good appetizer. It dries up the infectious secretions from ears and good against *visha dosa*. It has *kashaya rasa*, mitigates

kapha dosha and is useful in all types of *kushtha roga*.

8. **Kukutanda twak (Hens egg shell)¹¹** - *Kukutanda twak* is the shell of hens egg. Since it is rich in calcium, it has been included under *sudha varga*. After the eggs are used in kitchen and bakeries, the shell are usually thrown away. These shell can be used as a source of calcium.

Shodhana - The shells of hens egg are soaked in any of the sour or salty liquids for 3-4 hours. Later the sticky sheath at the inner side of the shell is removed and dried under sunlight. These dry shells are later stored as *shuddha Kukutanda twak* for further pharmaceutical use.

Marana - The dry *shuddha Kukutanda twak* is taken in a clean *khalva yantra*. It is added with *chengeri swarasa* or *ghritakumari swarasa* and triturated thoroughly to prepare *chakrika* of even size and shape. The *chakrikas* are dried under sun, enclosed in *sarava samputa* and subjected for one *laghu puta*. When self cool the white coloured smooth and soft *Kukutanda twak bhasma* is collected and stored in suitable container.

Dose and anupana - 1 to ratti 4 ratti with *navanita*, *sharkara*, *dugdha*, *amalaki swarasa*

Therapeutic uses - *Hridya*, *balya*, *mamsa vardhaka*, *vajikara*, *prameha*,

9. **Kachchhapashthi (Tortoise bone)¹²** - Its also called *kurmaprushtha*, *kachchhapasthi*, *kurmashthi* etc.

Shodhana - Small pieces of *ashuddha Kachchhapashthi swedana* (boil) with *nimbu swarasa* for 2 yama (6 hours) and get *shuddha Kachchhapashthi*.

Marana - Small pieces of *shuddha Kachchhapashthi* keep amidst *kumari swarasa* subject to *puta* collect and again rub with *kumara swarasa* subject to *puta*

for 2 times white coloured *Kachchhapashthi bhasma*.

Dose and anupana - 2 to 4 ratti with honey, *guduchi satva*

Therapeutic uses - It is very useful for *bala* and it gives strength to bone.

CONCLUSION - *Sudha varga* plays important role in Ayurvedic therapeutics as well as modern medical scenario. *Sudha varga dravyas* mainly contains calcium compounds chiefly calcium carbonate, calcium oxide and calcium silicate. Calcium being the main ingredients plays an important role in many physiological activities not only related to bone but includes blood clotting, nerve conduction, muscle contraction, regulation of enzyme activity and cell membrane function. It takes part in production of several hormones and enzymes which control digestion process and metabolism. *Sudha* (calcium carbonate) is widely used as a dietary calcium supplements¹³. *Sikta* is mainly used in *daha*, *rakta dosha*, *vrana*. *Godandi* is used in *jeerna jwara*, *shiroshoola*, *swasha*, *kasa* and *padu roga*. *Shankha* is mainly used in *grahani*, *amlapitta*, *agnimandhya*. *Shambuka* is used in *netra roga*, *sheeta jwara*, *grhni roga*. *Shukti* is mainly used in *shoola*, *hridaya roga*, *shwasa*, *mutra sharkara*. *samudra phenia* is used in *karna strava*, *karna shoola*, *visha dosha*. *Mrigashringa* is mainly used in *hridaya roga*, *parshwa shoola*, *jwara*, *kasa*. *Kukutanda twak bhasma* used in *hridaya roga*, *balya*, *mamsa vardhaka*, *shukra vikara*. The purpose of this study use of *sudha varga* (calcium compound) in all disease related to calcium and gastrointestinal disorders. So with its proper use, success can be achieved on many diseases in the future.

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