



A REVIEW ON PHARMACO-THERAPEUTIC EVALUATION OF *SNUHI* (*EUPHORBIA NERIFOLIA* LINN.) *PAANEYYA KSHARA* IN THE MANAGEMENT OF *STHOULYA* W.S.R. TO OBESITY.

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ABSTRACT

Snuhi (*Euphorbia nerifolia* linn), is a well known medicinal plant in the Indian system of medicine. *Snuhi* is a medicinal plant included in family Euphorbiaceae, commonly known as 'milk hedge'. *Sthoulya* is abnormal and excess accumulation of *Meda Dhatu*. In contemporary medical science it is compared with obesity. *Kshara* is the the alkaline substance of the plants obtained by processing the ash of drugs. Ayurvedic pharmacognosy, is concerned with the names and synonyms of the *dravya*, as well as their morphological characteristics. Euphol is a chemical compound of *Euphorbia nerifolia*. Euphol is a euphane-type triterpene alcohol that is structurally similar to cholesterol and has a wide range of pharmacological properties. This review article includes overall information about the plant *Snuhi*, *Snuhi kshara*, it's pharmacological aspect and its use in *Sthoulya* (Obesity).

KEYWORDS : *Snuhi*, *Kshara*, *Sthoulya*, Obesity, Pharmacognosy.

INTRODUCTION

Snuhi (*Euphorbia nerifolia* linn), is a well known medicinal plant in the Indian system of medicine. *Snuhi* is a medicinal plant included in family Euphorbiaceae, commonly known as 'milk hedge'. The plant is common in rocky ground and is often cultivated for hedges in villages throughout India.

Sthoulya is abnormal and excess accumulation of *Meda Dhatu*. In contemporary medical science it is compared with obesity and it is defined as excess body and visceral fat that poses health risk. The most commonly used definition, established by the WHO in 1997 and published in 2000 defined obesity as a common chronic disorder of excessive body fat.

India has reworked the obesity guidelines by considering the alarming growth of abdominal obesity by lowering the BMI from 25kg/m² for overweight to 23kg/m².

As per to Acharya Charaka –

“मेदोमांसानिवृद्धत्वाच्चलस्फिगु दरस्तनः।अथथोपचयोत्साहोनरोअतिस्थूल उच्यते” 11 (Ch.Su.21/9)

The inordinate increase of fat and flesh is disfigured by pendulous buttocks, abdomen and breast and that increased bulk reduces the corresponding increase in energy. So the person has less enthusiasm in his physical activity.

क्षार –

तत्र क्षरणात् क्षणनाद्वा क्षारः। (सुश्रुत सूत्र 11/4)

Kshara is the one, which possess the '*ksharana* property'. *Ksharana* here is to mobilize and remove the deformed body tissues.

It is the alkaline substance of the plants obtained by processing the ash of drugs.

Paaneeya Kshara – Alkalis which can be consumed through Mouth.

- MATERIAL AND METHOD –
- VERNACULAR NAME OF *SNUHI*

The plant name is available in the following languages.

- **Sanskrit:** *Snuhi*, *Snuk*, *Vajri*, *Sinhatunda*, *Vajradruma*, *Sudha*, *Samantadugdha*, *Guda*, *Nistrinshapatra*. (Database of Medicinal Plants Used in Ayurveda, Vol. iv Central Council For Research in Ayurveda & Siddha, New Delhi)
- Hindi : *Thuhar*, *Sehunda*
- English: Milkhedge
- Gujarati : *Thor*, *Kantalo*

TAXONOMIC CLASSIFICATION OF *SNUHI*

- Kingdom : Plantae
- Order : Malpighiales
- Family : Euphorbiaceae
- Subfamily : Euphorbioideae
- Tribe : Euphorbiceae
- Genus : Euphorbia

- Species: *neriifolia*.

CHEMICAL COMPOSITION OF *SNUHI*-

The latex contains water and water-solubles (69.4%-93.3%) and caoutchouc (0.2-2.6%). Euphol (whole plant and latex), n-hexacosanol, euphorbol, hexacosanoate and pelargonin-3, 5-diglucoside (bark), *neriifoliol*, *neriifolione* (latex), anthocynins, pyruvate dikinase and terpenes (plant).

DOSE

Paaneeya Kshara of *Snuhi*- 2 to 4 Ratti

PROPERTIES –

Snuhi-

सेदुण्डो रेचनस्तीक्ष्णो दीपनः कटुको गुरुः ।

शूलामाश्टीलिकाऽऽध्मानकफगुल्मोदरानिलान् 11

उन्मादमोहकुशराश्चः शोथमेदोऽभ्यपाण्डुताः । (भावप्रकाशनिघण्टुः गुडूच्यादिवर्गः)

According to *Acharya* Bhavmishra *Snuhi* has *medohar* (anti hyperlipidemic) effect on the body.

क्षार –

छेद्यमेघलेख्यकरणात् , त्रिदोशघ्नत्वात् , विशेषकियाऽवचार-गाच्च 11 (सुश्रुत सूत्र 11/3)

Kshara does functions like excision (removal), cutting (dividing) and scraping, mitigates all the three doshas and is suitable for being used by special methods.

स खल्वान्नेयोशधिगुणभूयिष्ठत्वात् कटुक उश्नस्तीक्ष्णः पाचनो विलयनः शोघनो रोपणः शोशनः स्तम्भनो लेखनः कृम्यामकफकुश्टविशमेदसामुपहन्ता पुंस्तवस्व चातिसेवितः 11 (सुश्रुत सूत्र 11/5)

According to *Acharya* *Susruta*, Because of predominance of *aagneya* drugs (drugs of fiery nature) it is pungent, hot (producing heat), penetrates deep, causes ripening, liquification, purification, healing, absorbing (fluids), withholding (stopping), scrapifying, destroys worms (bacteria, virus etc), *ama* (undigested materials) and *kapha*, cures *kustha* (skin diseases), poison and fat accumulation (obesity) and if used in excess it even destroys masculinity (sexual prowess in males).

Classical reference of the drugs was the base of the following study. This drug is referred in Ayurveda text as an anti - obesity pharmacological property holder.

- **GUNA KARMA OF *SNUHI*** - According to *Bhavaprakasa* Nighantu are presented below:

RASA- *Katu*

GUNA- *Snigdha*, *Laghu*

VIRYA- *Ushna*

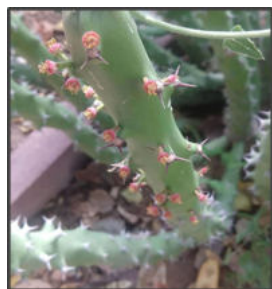
DOSAKARMA- *Kapha Vata samaka*

• PHARMACOGNOSTICAL STUDY

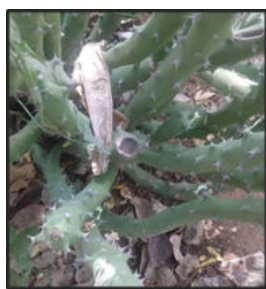
Namarupagyanam, or Ayurvedic Pharmacognosy, is concerned with the names and synonyms of the *dravya*, as well as their morphological characteristics (*rupa*).

Macroscopic description of *Snuhi* -

- **Stem**, green, cylindrical, showing, spiral ridge portion only, dried stem, tough with pairs of sharp stipular thorns, with hollow space in centre containing white reticulate mass, taste acrid.
- **Stem-** Stems slender and leafy Ol' thick and fleshy and sometimes leafless or nearly so.
- **Leaves** , Fleshy, deciduous, obovate-oblong, 6-12 inches long, clustered towards the end of the branches.
- **Flower-** Greenish, yellow, small and surrounded by yellowish involucre, 3-7 in a cyme.
- **Fruit-** 0.6 mm ,broad, tricus, globose, 3-lobed.
- **Seed-** Greenish brown smooth, about the size of mustered.



a. *Snuhi* Flowering



b. *Snuhi* Stem



c. *Snuhi* Plant

b) Microscopic description of *Snuhi*st

- Transverse section shows a single layered epidermis composed of squarish, thin-walled, nchymatous cells, followed by a thick zone of cortex, differentiated into two parts, outer of thin walled, rectangular, oval and oblong parenchymatous cells of about 20 layers depth, inner wider zone, consisting of about 30-40 layers of thin-walled, oblong or ovoid.
- Elongated parenchymatous cells having a number of rounded and oval, latex cells, some contain dark yellowish latex, the number of latex cells gradually reduce towards outer side, below cortex, about 10 layers of phloem present, containing group of fibres towards cortex, Xylem consists of vessels, tracheids, fibres and xylem parenchyma, pith consists of thin-walled, rounded or oval parenchymatous cells, starch and calcium oxalate crystals absent.

• POWDER MICROSCOPY OF *SNUHI*

S. No.	STAINING G DYE	IMAGE	CHARACTER
1.	Safranin		Lignified trichomes and lignified parenchyma
2.	Methylene blue		Fibers and blue stain epidermal parenchyma cells
3.	Ferric chloride		Fibrous cells, Dark brown stain confirm tannins
4.	Eosine		fibrous cluster and Lignified parenchyma

• Measuring pH of *Snuhi* Kshara (*Paneeeya*) through litmus paper method- In Between 10-10.5



1.TLC of *Snuhi* -



a. Visible light



b. 254nm



c. 366nm

• PROBABLE MODE OF ACTION-

• Mode of Action of *euphol* on *Sthoulya* -

Euphol is a chemical compound of *Euphorbia neriifolia*. *Euphol-Euphol from Euphorbia (NMR Spectroscopy in Pharmaceutical Analysis, 2008)*

Euphol is a euphane-type triterpene alcohol that is structurally similar to cholesterol and has a wide range of pharmacological properties.

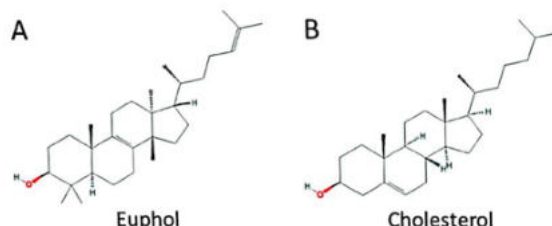


Fig 1. Chemical structures of (A) cholesterol and (B) euphol.

Lipid rafts are plasma membrane microdomains with an important role in cell survival signaling, and cholesterol is necessary for the lipid rafts' structure and function. The plasma membranes of cells contain combinations of cholesterol and protein receptors organised in glycolipoprotein lipid microdomains termed lipid rafts.

• Probable Mode of action of *Snuhi* Kshara -

Effect on *Agni* and *Ama* - Main action of *Snuhi kshara* is on *Pitta*, which means it increase *Jatharagni* (digestive fire), improves metabolic activities in the body and corrects cellular level energy. By *Deepan* and *Pachan* properties, it mainly corrects the *Medodhatvagnimandya* and checks the further progression of *Medasanchaya*.

In the pathology of *Sthoulya*, *Kapha* is main *Dosha* and *Meda* is main *Dushya*, while *Agnimandya* takes place at *Medodhatvagni* level. So, that type of drug should be selected which have *Kapha* and *Medanashaka* property and have efficacy to correct the function of *Medodhatvagnimandya*.

Kshara is alkaline substances obtained from the water soluble ashes of herbal drugs. **Alkaline water** can boost your metabolism. The easiest way to lose weight without too much effort is by increasing your metabolic rate, or the rate at which your body burns calories. A higher

metabolic rate means your body can burn unnecessary fat regardless of whether you're awake or asleep.

DISCUSSION-

• *Nidana of Sthoulya-*

In *Sthoulya* etiological factors mainly vitiate the *Meda-Kapha*. This vitiated *Meda* obstruct the path of *Vata*, which results in to provocation of *Vata*. In the *samprapti* two factors are of prime importance, *Tikshna Jatharagni* and *Medodhatvagnimandya*. *Vagbhata* has also mentioned '*Ama*' as a causative factor.

• *Samprapti-*

Over attachment in *Kapha* and *Medasadharmi Amarasa* containing etiological factors leads to *Kaphabhuishta Doshavridhi* in the body which causes the production of *Ama*. This *Ama* goes directly to *Meda Dhatu* & lead to increase and accumulation of *Meda* by creating *Medodhatvagnimandhya*.

• *Chikitsa-*

Jatharagni is found in *Tikshna* condition whereas *Medodhatvagni* is found in *Mandagni* condition in the *Sthoulya*. It is due to *Avarana* of *Vayu* in *Koshta*. So person indulges in more food, which produce excessive *Meda* and vitiated cycle goes on.

This cycle is broken (*Samprapti Vighatana*) by *Katu Tikta Rasa*, *Ushna-Viryapradhana Snuhi-Kshara* drug.

The drug having *Lekhaniya* and *Chedaniya* properties. Such *Snuhi Kshara* is helpful in lowering down the level of *Meda* by *Srotashodhana* & *Kaphamedohara* properties.

CONCLUSION-

Any drug will act in the body through the configuration called *Rasapanchaka*. They contribute either individually or in combination for the drug action.

Snuhi Regarding its properties has been said as *Katu* in *Rasa*, *Laghu* in *Guna*, *Ushna* in *Virya*, *Katu* in *Vipaka*. Combination of these *Rasapanchaka* is one of the best part used in for treating *Sthoulya*.

The drug *Snuhi* used in *Kshara* form, *Kshara* itself has *ksharana* and *lekhana* property. *Kshara* does functions like excision (removal), cutting (dividing) and scraping, mitigates all the three doshas and is suitable for being used by special methods.

Sthoulya is a *Kaphaj-Vataj Vyadhi*. *Snuhi kshara* has *Katu*, *Laghu*, *Ruksha*, *Tikshna*, *Ushna Guna* and consists of *Katu*, *Tikta Rasa*, so they cause *Shoshan*, *Lekhan*, *Amahara Karma*. It acts on *Kapha-Vata* by virtue of its *Ushna Virya*. So all *Dosha* are alleviating and body weight automatically decreases.

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