

**A REVIEW ON DRUMSTICK PLANT (MORINGA OLEIFERA LAM.) – ITS
MEDICINAL AS WELL AS NUTRITIONAL VALUE**

Dr. Tania Panhotra^{1*}, Prof. Makhan Lal², Dr. Ramanand³ and Dr. Dinesh Singh⁴

¹P.G. Scholar, ²Professor and H.O.D, ³Lecturer, ⁴A.M.O.
P.G. Dept. of Dravyagun Vigyan, State Ayurveda College and Hospital, Lucknow, U.P.

***Corresponding Author: Dr. Tania Panhotra**

P.G. Scholar P.G. Dept. of Dravyagun Vigyan, State Ayurveda College and Hospital, Lucknow, U.P.

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ABSTRACT

Traditional medicinal plants have long been used to treat various ailments in the primary health care system. *Shigru* (*Moringa oleifera*) is drought resistant tree, multipurpose tree basically native of India and widely found in sub Himalayan regions of northern India. According to Ayurveda *Aushadi dravyas* are *virya* Pradhan and *Ahariya dravyas* are *Rasa* Pradhan, *Shigru* possess both properties which makes it unique from other plants. It has an impressive range of medicinal use with high nutritional value. *Moringa* is antioxidant herb. Leaves of *Shigru* (*moringa oleifera*) are rich source of vitamins, proteins and minerals. The different parts of this plant are used for the cure of arthritis and joint disorders, malnutrition, blindness, diabetes, high blood pressure, anaemia, urinary tract problems, kidney stone. This review summarizes the Nutritional and Medicinal efficacy of *Shigru*.

KEYWORDS: *Moringa oleifera*, Ayurveda, Nutritional use, Medicinal use.

INTRODUCTION

Moringa oleifera is locally name as “*Sohanjna*”. Sanskrit name of *moringa oleifera* is “*Sigru*”. *Moringa* is the highly valued plant of the genus *moringa* belonging to family *moringaceae*. This plant is native to Indian subcontinent and has become naturalized in the tropical and sub-tropical areas around the world. It can grow well in the humid tropics or hot dry lands and can survive in less fertile soils and is little affected by drought. There are 13 species of *moringa* that range in size- from leafy shrubs to tall trees. The tree ranges in height from 7 to 10 m. The plant is referred to by a number of names such as Horse radish tree, Drum stick tree, Ben oil tree, Benz olive tree, Miracle tree and Mother’s best friend. *Moringa* act as good source of natural anti-oxidants. In Ayurveda it is extensively used in disease like *krimi* (worms/bacteria), *Shotha* (swelling), *Shula* (pain),

vidradhi (internal abscess) and also used as *Chakhushya* (eye tonic)

LITERARY REVIEW

Vedas are the earliest known documentation about the medicinal uses of plants in Indian literature. Rig Veda known as the first Veda mentioned the plant “*Shigru*” as a domestic plant. *Sigru* is applied externally (mixed with butter) in *krimi rogas* (*Kousika sutra* 29/26). In Atharva veda, *sigru* is mentioned for *Uchaadana* karma. Dharma sutras prohibits its utility as tooth brush as well as in rituals.

Chemical composition: - Moringine, Ben-oil, Spiro chin, Pterygospermin (antibiotic), Amino acids.

Common medicinal uses of different parts of *moringa oleifera* with chemical composition.

Table no 1: Composition

Plant part	Chemical composition	Medicinal uses
Root	Spiro chin	<i>Vatanulomaka</i> , <i>Varandoshanasak</i> , <i>Vidradhi</i> , <i>Apaci</i> , <i>Chaksuya</i> , <i>Gulam</i>
Leaves	Amino acids viz. aspartic acid and glutamic acid, serine, glycine	Purgative, poultice to sores, rubbed on temples for headaches, bronchitis, scurvy, control glucose levels, reduce glandular swelling
Stem bark	Sterols, Terpens	Prevent enlargement of spleen, anti-tubercular activity, root bark extract is put into ears to relieve headaches and toothache. <i>Sandhisootha</i> , <i>Body pains</i>
Gum		Dental caries, Astringent, intestinal complaints,

		Abortifacient, syphilis and rheumatism <i>Grahi, Aamvata</i>
Flower	Quercetin, kaempferol	Aphrodisiac, abortifacient, lower the serum cholesterol, anti-inflammatory
Seed		Anti-hypertensive, decrease liver lipid peroxides <i>Sandhivata, Aamvata, vatarakta</i>

MORINGA OLEIFERA AND ITS APPLICATIONS

Nutritional value: - Every part of Moringa oleifera is a store house of important nutrients and antinutrients. Moringa tree have been used to strive against malnutrition, especially among infants and nursing mothers. Moringa is rich in nutrition owing to the

presence of various phytochemicals present in its leaves, pods and seeds.

The leaves of moringa are rich in minerals like calcium, potassium, zinc, magnesium, iron and cooper. Vitamins like beta carotene of vitamin A, Vitamin B, such as folic acid, pyridoxine and nicotinic acid, vitamin C, D and E.

Table no 2: Vitamins.

VITAMINS	Leaves [<i>M. oleifera</i> (mg/100g of the plant)]
Vitamin A (Retinol)	6.78 -18.90
Vitamin B (Riboflavin)	0.05 -20.50
Vitamin B3 (Niacin)	0.8 -8.2
Vitamin B7(Biotin/ Vitamin H)	423j
Vitamin B12 (Cyanocobalmin)	0.06 -2.64
Vitamin C(Ascorbic acid)	17.3 -220.0
Vitamin E(Tocopherols)	77

Table no 3: Moringa oleifera (mg/ 100g of the plant).

Minerals*	Leaves	Pods
Calcium	440 -3650	30.0 -237.7
Magnesium	24 -1050	9.6 -83.4
Sulphur	137 - 925	137
Sodium	164.0 - 272.1	210.5
Potassium	259 - 20616	259.0 -2097.2
Phosphor	70 -300	110.0 -194.3
Iron	0.85 - 126.20	4.4 -15.5
Zinc	0.16 -3.30	ND
Cooper	0.6 -1.1	2.7 -3.5

ND: not determined

The National Institute of Nutrition's 1989 book, "Nutritive value of Indian foods" shows a handful of moringa leaves contains:

- Seven times the amount of vitamin C in an orange.
- Three times the amount of iron in spinach.
- Four times the amount of vitamin A in a carrot.
- Four times the amount of calcium in one glass of milk.
- Three times the potassium in one banana.
- Two times the protein found in regular plain yogurt.

In Philippines, it is known as Mother's best friend because of its utilization to increase women's milk production and sometimes prescribed for anaemia.

Moringa seeds have specific protein fractions for skin and hair care. Two new active components for the cosmetic industry have been extracted from oil cake. Purisoft consists of peptides of the moringa seed. It protects the human skin from environmental influences and combats premature skin ageing with dual activity, antipollution and conditioning strengthening of hair, the

moringa oleifera seed extract is a globally acceptable innovative solution of hair care (Stussi et al; 2002).

Since 1998, WHO has promoted this tree as an alternative to imported food supplies to treat malnutrition in poor countries [Johnson, 2005]

MEDICINAL VALUE

Medicinal virtues of this plant have been long known and appreciated in India. It has been frequently mentioned by Chkradatta, also in the Bhavprakash; and in other Sanskrit works on medicine. Almost all parts of the plants e.g. roots, leaves, seeds flowers etc. have been used.

Seeds: - The seeds are called 'Sweta maricha' or white pepper and have been described as acrid and pungent.

- They are also said to be stimulant and are given in case of ascites resulting from enlargement of the liver and spleen.
- Oil expressed from the seeds is used externally for relieving pain of the joints in gout and acute rheumatism.

Root: - Fresh juice of the root bark is said to relieve otalgia when poured into the ears.

- Root of the young trees is prescribed in small doses in a variety of conditions like intermittent fever, epilepsy, hysteria, palsy, chronic rheumatism, dropsy, enlargement of the spleen and dyspepsia.
- The root has also been recommended by hakims in the treatment of soreness of mouth and throat and pain in the gum due to dental caries.
Leaves: - The young leaves are used as food.
- They have been used with other ingredients in the treatment of dog bite and scurvy.
Pods: - The pods act as a preventive against intestinal worms.
Flowers: - Mohammedan writers describe the flowers as hot and dry and consider them useful in cold humour and swellings.
- they are supposed to be tonic and diuretic and to inc. the flow of bile
Juice has been described with milk as a diuretic, antilithic and digestive and is useful in asthma.
- Flowers are commonly used as a food, these are sometimes boiled with milk and the preparation is used as an aphrodisiac.
 - In many regions of Africa, moringa is widely consumed for self-medication by patients affected by Diabetes, Hypertension or HIV/AIDS.
 - Due to its antibacterial, antifungal and antimicrobial properties moringa extract might combat infections caused by salmonella, Rhizopus and E.coli.

MORINGA seed as a coagulant: - one of the most applied properties of moringa oleifera is the highly efficient coagulating effect of its seeds, which are used in water treatment. Seeds of Moringa contain water-soluble, positively charged proteins that act as an effective coagulant.

The oil from moringa commercially known as Ben oil, is highly esteemed by perfumers, for its great power of absorbing and retaining even the most fugitive odours.

Contraindications: - while the leaves are perfectly soft, consuming large quantities of the bark or pulp may be harmful. Side effects of moringa include:

- Lower blood pressure and slow rate.
- Uterine contractions from moringa bark.
- Chemical isolated from roasted moringa seeds cause cell mutations.
- Interference with fertility
- *Shigru* is *Raktapittakar* and *vidahi* therefore it is contraindicated in persons with *Pittaprakriti*.
- Contraindicated in *Vrikkasotha* (Bhavprakash)

CONCLUSION

In India, the first recorded use of plants for **human** welfare is seen in *Veda*. The study revealed that almost all parts of *Shigru* have immense medicinal potential and nutritional importance. Due to its multipurpose unlimited benefits for humanity, it is often referred to as both “miracle tree” and “gift of nature”. India could easily

fight against the problems of malnutrition and diseases through plantation in unutilized areas to build up socio-economic importance.

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