

## Moringa Oleifera-An Overview

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### Abstract:-

*Moringa oleifera* is commonly known as drum stick tree (due to slender, long, triangular seed pods), horse radish tree (the roots taste similar to that of horse radish), benoil tree (as the benzoil is extracted from the tree). *Moringa* is a fast growing drought resistant tree. In the present review we find out the character of *Moringa oleifera* cultivation, collection, medicinal and common uses. In this review is further use for research scholars.

**Key words:** *Moringa oleifera*, horse radish tree, cultivation, collection, common uses

### INTRODUCTION:



Fig:1 *Moringa oleifera* plant

### Vernacular names of *Moringa oleifera* :-

In Marathi, it is called Shevga.

In Malayalam, it is known as Muringa, and the fruit is called Muringakaya or Muringakka.

In Tamil, the tree is called Murungai Maram and the fruit is called Murungai-kaai

In Kannada, it is known as Nuggekayee.

In Telugu, it is known as Munagachettu, and the fruit is called Munagakaya.

In Konkani, it is called Mushinga Saang.

In Sinhalese, it is called Murunga.

In Gujarati, it is called Saragvo.

In Hausa language, it is called Zogale.

In Oriya, it is called Sajana or Sujuna.

In Nicaragua, the plant is referred to as Marango.

In Bengali, it is called Sojne danta.

In Assamese, it is called Sojina.

In Punjabi, it is called Surajana.

In Hindi, it is called sahjan.

In Nepali, it is known as Sajiwan or Swejan.

In Guyana, it is called Sijan

In Thai, it is called "ma rum".

In Haiti, the *Moringa* is called the benzolive (or benzolivier).

In Indonesian, the *Moringa* is called kelor (kalor in Malay).

In Tulu, it is known as Noorgaee.

In Javanese, it is called limaran.

In Mooré (Burkina Faso), it is called "Arzan Tiiga," which means "tree of paradise".

In Dioula (Côte D'Ivoire), it is called "Arjanayiiri".

### Scientific classification:-

- Kingdom- Plantae
- Order – Brassicales
- Family – Moringaceae
- Genus - *Moringa*
- Species – *M. oleifera*

### DESCRIPTION:-

Height – 10 – 12 m (32 – 40 ft). Diameter – 45 cm (1.5 ft) .

Colour – Bark – whitish grey Young shoots – purplish (or) greenish white .Flowers – Fragrant, bisexual and surrounded by five unequal, thinly veined, yellowish white petals.

Flowers are about 1.0-1.5 cm (long) and 2.0 cm (broad).

Fruits – They have hanging type of fruits , globular seeds of



about 1 cm in diameter , capsule is three sided brown in colour of size 20 – 45 cm .Seeds have three whitish papery wings . Propagation is usually by wind and water.

**Cultivation:-**

It is usually grown in semi arid , tropical and sub tropical areas . Moringa can tolerate a wide range of soil conditions, but often prefers neutral to slightly acidic soil (p<sup>H</sup> 6.3 to 7.0 ) .

Moringa cannot tolerate freezing or frost conditions and roots becomes rotten in water logged areas . Moringa only requires a few amount of water , it can be grown by using rain water .

Moringa is particularly suitable for dry regions as it is a heat loving plant .

PARAMETER	REQUIRMENT / RANGE
Climate	Grows best in tropical (or) sub tropical.
Altitude	0 – 2000 m.
Rainfall	Irrigation needed for leaf production if rainfall is less than 800mm
Soil type	Loamy , sandy (or) sandy loam .
Soil p <sup>H</sup>	5 - 9.

**Production area :-**

India is one of the largest producer of moringa,with an annual production of 1.1 to1.3 million tonnes of fruits from an area of 380 km<sup>2</sup> . In India Andhra Pradesh stands at 1 st position in both area and production (156.65 km<sup>2</sup>) followed by Karnataka (102.8 km<sup>2</sup>) and Tamilnadu ( 74.08 km<sup>2</sup>) .In state like Odisha moringa is grown in home garden , as living fences in southern India and Thailand , it is locally marketed .

**Cultivation practice :-**

Moringa has an ability to grow as annual (or) perennial plant .

In the primitive years of plant growth all pods are edible but in later years the pod becomes inedible and bitter . Moringa in less favorable growing locations has advantages of reduced erosion and stabilizing agro forestry when grown perinially .

**Propagation :-**

Moringa can be easily propagated by sees or cuttings . Moringa has high germination rate of about 85% .Moringa when grown in seed beds and containers can be protected from insects and pests but it is a very time consuming process . Moringa also has the ability to eradicate the soil erosion .When a portion of moringa is taken for propagation atleast one third of it must be buried in the soil . Seeds of moringa are planted inch below the surface and can be germinated round the year in well draining soil .

**Plantation :-**

The spacing of plants should be 15 x 15 cm (or) 20 x 10 cm , along with conveniently spaced alleys in order to facilitate plantation management and harvests .

They could also be grown by placing the seed lines 45 cm apart and to sow every 5 cm on those lines . Moringa is highly prone to weeds and diseases , prevention from them is difficult . In semi intensive production the plants are spaced 50 cm to 1 m apart . this gives good results with less maintenance .

**Breeding:-**

Moringa is originated in India and includes several wild types . In countries where moringa has been introduced , the diversity is usually much smaller when compared to the areas which has natural cultivation . Some wild type varieties are indigenous to those particular areas .

**Yield and harvest :-**

Moringa is mainly cultivated for its leaves, pods, kernals for oil extraction and water purification . The amount of yields may vary depending on season, variety, fertilization and irrigation .

The yields of moringa is increased in warm climate, dry conditions, by the usage of supplemental fertilizers and through irrigation.

**Leaves :-**

Moringa average yield is about six tons/ha/year (fresh matter).The harvestation is done in between the rainy and dry seasons, from the young plant after seeding (in a period of 60 days) the leaves and stems can be harvested. Moringa plants are cut back to 60 cm of the ground after every harvestation.The cultivation of M.oleifera can also be done



intensively with irrigation and fertilization with suitable varieties

#### Pests and Diseases :-

Moringa tree is not affected by any serious diseases. In India, the caterpillars mostly affect the

moringa species which include the caterpillars such as bark-eating caterpillar, hairy caterpillar, green leaf caterpillar etc.,. The moringa plant shows the symptom of defoliation (losing its leaves) due to the budworm (Noctuidae).

Moringa serves as a host for *Leveillula taurica* causing a fungal disease called powdery mildew. Damaging agents also include aphids, fruit flies, stem borers and termites (in some regions). Hence cultivation management should therefore be checked.

#### Nutrients :-

##### NUTRITIONAL VALUE PER 100gm

Energy	64kcal (270kj)
Carbohydrates	8.28g
Dietary fiber	2.0g
Fat	1.40g
Protein	9.40g
VITAMINS	
Vitamin A	378µg (47%)
Thiamine (B <sub>1</sub> )	0.257mg (22%)
Riboflavin (B <sub>2</sub> )	0.660mg (55%)
Niacin (B <sub>3</sub> )	2.220mg (15%)
Pantothenic acid (B <sub>5</sub> )	0.125mg (3%)
Vitamin (B <sub>6</sub> )	1.200mg (92%)
Folate (B <sub>9</sub> )	40µg (10%)
Vitamin C	51.7mg (62%)

Moringa has many edible parts, with regional uses varying widely:

- Immature seed pods, drum sticks.
- Leaves.
- Mature seeds.
- Oil pressed from seeds.
- Flowers.

#### Nutritional values of leaves :-

In *Moringa oleifera* leaves are the most nutritious part. It acts as a major source for B- vitamins, vitamin-C, provitamin A as beta carotene, vitamin-K, manganese and proteins. When compared to the other leaves, the leaves of *Moringa oleifera* has high contents of nutrients. The leaves are cooked and used like spinach, dried and crushed into a powder used in soups and sauces. Nutritional content of 100 gm of fresh *Moringa oleifera* is as labeled



## MINERALS

Calcium	185mg (19%)
Iron	4.00mg (31%)
Magnesium	147mg (41%)
Manganese	0.36mg (17%)
Phosphorus	112mg (16%)
Potassium	337mg (7%)
Sodium	9mg (1%)
Zinc	0.6mg (6%)

## OTHER CONSTITUENTS

Water	78.66g
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## UNITS

µg = micrograms , mg = milligrams

g = grams

### Culinary uses :-

Moringa has numerous applications in cooking throughout its regional distribution. Leaves of moringa are fried and mixed with tuna chips, onions and dried chillies.

This is equivalent to sambal and eaten along with rice and curry. Leaves of moringa can also be used in the preparation of soup and eaten especially for breakfast during ramzan.

Moringa is a common ingredient in an omelet.

Moringa leaves are commonly added to broth as a simple soup.

This leaf can also be used as a typical ingredient in tinola, a traditional chicken dish consisting of chicken in a broth, moringa leaves, and either green papaya or another vegetable or in the all-vegetable dish known as utan.

These moringa leaves are processed with olive oil and salt for a pasta sauce.

Moringa juice may be mixed with lemon juice to make ice candies or cold drinks. In Indonesia, the leaves are commonly used in a clear vegetable soup, with corn, spinach and coconut milk.

### Traditional uses:-

Extracts from leaves contain low contents of polyphenols which are under basic research for their potential properties. Biological properties of moringa components, there are high quality studies on humans to justify its uses to treat human diseases.

### Other uses:-

Moringa oleifera leaf powder is used as an effective soap for hand wash. It is used as an antiseptic.

Oil from moringa seeds is used in foods and in hair care products and as a machine lubricant. Moringa is used in India and Africa in feeding programs to fight malnutrition. It is used as an aphrodisiac, boosts the immune system. It is used to treat rheumatism, asthma, cancer, constipation. Used in the treatment of epilepsy, intestinal ulcers, bacterial, fungal, viral and parasitic infections.

### Conclusion:

*Moringa oleifera* plant is commonly available in India, its wild source is rare but cultivated everywhere in India. Its total parts like leaf, fruit, seed, stem are very useful in many ailments.



This review mainly useful for further research student's purpose only. Here we described the vernacular names, scientific classification, cultivation collection, traditional and medicinal uses of this plant.

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