



**SIGMA<sup>®</sup>**  
**UNIVERSITY**

# Moringa



## **Synonym:**

Gujarati: સરગવો (*Saragvo Saragvo*)

Hindi: sahjan / drumstick tree (सिजन / सिजन)

English: horseradish tree, ben oil tree

**Botanical name:** *Moringa oleifera*

**Family:** Moringaceae

## **Chemical Constituent:**

- Flavonoids: Quercetin, Kaempferol, Rutin
- Alkaloids: Moringine, Moringinine
- Phenolic Compounds: Gallic acid, Caffeic acid, Chlorogenic acid
- Vitamins:
  - Vitamin A ( $\beta$ -carotene)
  - Vitamin B1 (Thiamine), B2 (Riboflavin), B3 (Niacin)
  - Vitamin C (Ascorbic acid), Vitamin E
- Minerals: Calcium, Potassium, Iron, Magnesium, Zinc

- Essential Amino Acids: Leucine, Isoleucine, Valine, Lysine, Methionine
- Saponins and Tannins: Present in leaves and seeds
- Fatty Acids (from seeds): Oleic acid, Palmitic acid, Stearic acid
- Others: Glucosinolates, Isothiocyanates, Sterols ( $\beta$ -sitosterol)

## **Therapeutic Effect:**

- Antidiabetic
  - Reduces blood glucose levels by inhibiting  $\alpha$ -amylase and  $\alpha$ -glucosidase
  - Enhances insulin sensitivity
- Anti-inflammatory
  - Suppresses inflammatory cytokines (TNF- $\alpha$ , IL-6)
  - Useful in arthritis and chronic inflammation
- Antioxidant
  - Neutralizes free radicals

- Protects against oxidative stress and cellular damage
- Antimicrobial
  - Active against *E. coli*, *Staphylococcus aureus*, *Candida albicans*
  - Used in oral and skin infections
- Cardioprotective
  - Reduces cholesterol and blood pressure
  - Improves lipid profile
- Neuroprotective
  - Supports cognitive function and protects neurons
  - Potential role in Alzheimer's and neurodegenerative disorders
- Wound Healing
  - Promotes fibroblast activity and tissue regeneration
- Hepatoprotective
- Protects liver cells from toxins and oxidative damage.

**Marketed preparation:**

- Powdered Leaf Extracts
  - Used in smoothies, capsules, and teas
  - Rich in vitamins and antioxidants
- Capsules/Tablets
  - Standardized for antidiabetic and anti-inflammatory effects
  - Popular in nutraceuticals and dietary supplements
- Herbal Teas
  - Promoted for detoxification and metabolic health
  - Often blended with ginger or tulsi
- Moringa Oil (Ben oil)
  - Extracted from seeds
  - Used in cosmetics and cooking
  - Rich in oleic acid and antioxidants
- Topical Creams and Serums
  - Used for skin brightening, anti-aging, and wound healing
  - Combined with aloe vera or turmeric

- Functional Foods
  - Incorporated into health bars, fortified drinks, and snacks
- Ayurvedic Formulations
- Used in *Shigru Churna*, *Shigru Guggulu* for joint and metabolic disorders

**Key Constituents:** vitamins (A, C), minerals (Ca, K), glucosinolates, isothiocyanates, moringine, flavonoids, proteins.

**Uses:** nutritional (leaves), anti-inflammatory, antioxidant, antimicrobial; pods (drumsticks) used as vegetable; also used in water purification (seeds).