

MEDICINAL PROPERTIES OF *CUCUMIS MELO* : A REVIEW

Farha Naaz¹, Sayantan Mukhopadhyay^{2*} and Neha P. Singh²

¹Dev Bhoomi Institute of Pharmacy and Research, Dehradun - 248 007, India.

²School of Pharmacy and Research, Dev Bhoomi Uttarakhand University, Dehradun - 248 007, India.

*e-mail : dean.sopr@dbuu.ac.in

(Received 3 August 2022, Revised 23 September 2022, Accepted 1 October 2022)

ABSTRACT : *Cucumis melo* is still a traditional plant belonging to the family Cucurbitaceae (Anjum and Qaiser, 2008). Musk melon, kharbuja. Melons are some of its other names. Musk melon is a beautiful, tasty and delightful domestic produce that is consumed for its therapeutic and nutritional characteristics. Musk melon is a beautiful, tasty and delightful domestic produce that is consumed for its therapeutic and nutritional characteristics. A pharmacological study on *C. melo* revealed its enormous potential in the treatment of inflammation, pain, cancer, cough, liver illness and cardiovascular disorders. Cucumis is widely used in the cosmetic industry and in traditional medicine as a skin conditioner. This plant contains phytochemicals, bioactives, vitamins, and other compounds that aid in the treatment and prevention of a variety of ailments. The research supported medicinal qualities and pharmacological activities of the plant, such as anti-cancer, anti-diabetic, anti-oxidant, anti-microbial, anti-ulcer, anxiolytic and other medical purposes. This review article gives a scholarly summary of *Cucumis melo*'s therapeutic characteristics. Because musk melon parts of the plant have a low toxicity and are used as a nutritional as well as in clinical research. Trustworthy medicine is only needed to solidify *C. melo* and its spp. Musk melon may be thought of as a unique economical, pleasant and safe fruit medicine because it is a vital part of our biodiversity and since no harmful consequences have been documented thus far.

Key words : Traditional, kharbuja, delightful, Aliments, economical, biodiversity.

How to cite : Farha Naaz, Sayantan Mukhopadhyay and Neha P. Singh (2022) Medicinal properties of *Cucumis melo* : A review. *Biochem. Cell. Arch.* 22, 4289-4293. DOI: <https://doi.org/10.51470/bca.2022.22.2.4289>, DocID: <https://connectjournals.com/03896.2022.22.4289>

INTRODUCTION

The plant of *Cucumis* species and *C. melo* are the juicy, delicious fruit and beautiful famous for the nutrition and medicinal uses. Musk melon, squash, cucumber, water melon, gourds and pumpkin all are included in Cucurbitaceae family. *C. melo* is also known as Musk melon or Cantaloupe is one of the very important cultivated to cucurbits which are found in India and Africa country. The morphology description is followed by Kirkbride (1993) and various. The plant of *Cucumis* species and *C. melo* used in antiulcer activity, anti-inflammatory, cardiovascular disorder, and various disease conditions (Parle and Singh, 2011).

Musk melon is a beautiful, juicy, tasty and delicious fruit popular for its nutritive and medicinal properties. The Cucurbitaceae family includes squash, pumpkins, cucumbers, Musk melons, watermelons and gourds. *Cucumis melo* (Cantaloupe or Musk melon) is one of the most important cultivated cucurbits, which is native

to India and Africa. It is a spreading, annual, more or less hairy vine. It grows well in all the tropical and subtropical areas of the world, but prefers hot climate. Musk melon is recommended for the treatment of cardiovascular disorders, as a diuretic, stomachic, antitussive and as a vermifuge (Kirkbridge, 1993).

Melon is a trailing annual herb. It thrives in subtropical or warm-tempered climates. Melons prefer warm, well-fertilized soil with good drainage and high nutrient content, but they are susceptible to downy mildew and anthracnose.

Synonyms (Asif-Snafi *et al*, 2006)

- Melon.
- Cantaloup
- Cantaloupe.
- Winter melon.
- Net melon.
- Netted melon.

- Nutmeg melon.
- Cucumis melo

Botanical grouping (Gill *et al*, 2011)

Kingdom- Plantae

Subkingdom- Tracheobionta

Division- Magnoliophyta

Class- Magnoliopsida

Subclass- Dilleniidae

Order- Violales

Family- Cucurbitaceae

Genus- Cucumis L.

Species- *Cucumis melo* L.

Distribution across the globe (Gill *et al*, 2011)

Iran, South Africa, India, China, the Philippines and Australia are among the countries where this species can be found.

Myanmar, Japan, Korea, Nepal, Pakistan, Saudi Arabia, Thailand and Yemen, Malaysia, Indonesia, New Guinea and Sri Lanka are among the exotic destinations in Asia.

African countries include Angola, Benin, Cameroon, Egypt, Ethiopia, Ghana, Kenya, Maldives, Mali, Nigeria, and South Africa. Senegal, Seychelles, Somalia, Sudan, Tanzania, Uganda, Zambia and Zimbabwe;

Pacific: Fiji Islands, Guam, New Britain, Samoa, Solomon Islands and Tonga.

California, Arizona, Texas, Colorado, Georgia, Michigan, and New York are among the states in the United States.

Botanical information (Thippeswami and Thakker, 2009)

For some characteristics, the morphology of Musk melon is very consistent, although the morphology of the same organ in various fruits might be highly diverse. Monoecious or andro-monoecious vines exist. Musk melon vines grow along the ground but can also be trained to climb a trellis or other support. Musk melon vines are often rather huge, however breeders are working on varieties that are more compact. The root system is extensive and shallow. The stems are striate or ridged. It has large green leaves, vivid yellow flowers, and tendrils on its sprawling branches. Seeds are 5-15 mm long, whitish or buff, flat, smooth, and whitish or buff.

Fruits come in a variety of sizes, shapes, and rinds. The outer skin can be smooth, netted, ribbed, or furrowed, and it can be yellow-brown, green, flesh yellow, or pink.

Musk melon fruit that has reached maturity is nearly round, yellowish green, and rough textured. A young Musk melon is green with a smooth rind and shallow grooves, depending on the cultivar. The fruits have numerous seeds.



Musk melon fruits.

Leaf : The Musk melon leaf is large, dark green, and rough. It is somewhat heart-shaped, orbicular, ovate, or angled with 5-7 lobes. They have 5-8 cm diameter. They are dentate and base cordate. The petioles are 4-10 cm long with simple tendrils. Musk melon leaves are sometimes confused with cucumber however, cucumber leaves (left) have sharply-pointed and toothed lobes.



Musk melon leaves.

Flower : Musk melon blossoms are yellow, with male and female flowers growing on the same plant. The little fruit (ovary) underneath the petals distinguishes the female bloom. After the pollen is discharged, the male flower loses its fruit structure and falls off the plant. Flowers range in size from 1-3 cm in diameter and are staminate, clustered, pistillate, solitary, or hermaphrodite. The calyx is 5-lobed and measures 6-8 mm in length. Petals are free, spherical, 2 cm long, and have three stamens.

Traditional uses (Bhatt and Kumar, 2022)

- Purgative
- Musk melon seeds can help with uncomfortable urination and dysuria.



Musk melon flower.

- Dyspepsia
- Aid in kidney function maintenance
- Anti-rheumatic and anti-gout qualities
- Lower blood pressure and avoid heart dysfunction
- Roots are powerful medic agents (one piece in 60 gramme lime water).
- Anasarca and dyspepsia are treated with peduncles.
- Kernels are used to treat stomach cancer.
- Beneficial for menorrhagia
- Fruit pulp is used to treat eczema, both chronic and acute.
- The fruits are being used as a first aid therapy for burns and abrasions that can be used as a cooling, cleansing, or moisturising agent for the skin.

Miscellaneous uses (Bhatt and Singh, 2021)

Cantaloupe is commonly consumed as a fruit, salad, or dessert with ice cream or custard. In recent decades, the seed kernels have been utilised as a viscosity, emulsification, fat binding, and flavouring component in a variety of soups and stews. The seed kernels are sometimes used in place of almonds and pistachios as a flavoring for breads, cakes, confectionary, and snack items. Musk melon seeds can be used in place of soybean in the manufacture of milk. Musk melon is used to get rid of tans and freckles. The fruit's flesh can be dried, pounded into a powder and used with grains to make bread, biscuits, and other baked goods.

Chemical constitution of muskmelon (Bhatt and Singh, 2021; Kourkoutas *et al*, 2006)

Biologically active compounds like tocopherols, phospholipids and sterols are present in melon seed oil in a large amount due to which it has a beneficial effect on humans. Four non-fatty acid compounds were found in the muskmelon plant: 15-heptadecenal (E), 6, 10, 14-

trimethyl-2-pentadecanone, 1-eicosene and 4, 8,12,16-tetramethyl-heptadecan-4-olide.

Melon contains glucose and fructose, as well as vitamins A, D, C, K, E and also some B vitamins. Melon has a sugar content of 4.6 to 18 percent and a pectin content of up to 4.5 percent. Melon also contains minerals such as calcium, potassium, phosphate, sodium, selenium, calcium, and salt.

The seeds, which are considered mainly as waste products, are rich in proteins 12.0-35.0% and glycerides 30.0-50.0%, the main components present in melon seed oil are palmitic acid 7.8-39.36%, linoleic acid 31.0-69.0%, oleic acid 12.1-31.0% and 4.9-10.45% of the stearic acid.

Pharmacological effects

Analgesic and anti-inflammatory properties (Soll *et al*, 1991) : The methanol extracts of *Cucumis melo* seeds has a strong analgesic activity. After an inflammatory stimulation, carrageenan causes an accumulation of leukocytes in the pleural cavity, as well as an increase in LTB₄ levels in pleural exudates. Neutrophil migration to the affected area is a significant proinflammatory factor because they release harmful oxygen radicals into the extracellular media. *Cucumis melo* reduced LTB₄ levels and restricted leukocyte inflow, resulting in an anti-inflammatory action.

Antioxidant and free radical scavenging activity (Ismail *et al*, 2010) : A methanolic extract of cantaloupe has been found to scavenge DPPH and hydroxyl radicals. The presence of phenolic chemicals, notably flavonoids, contributes to the efficacy of cantaloupe extract. Cantaloupe leaf and stem extracts were shown to have high antioxidant activity.

Anti-ulcerogenic activity (Gill *et al*, 2011) : A methanolic of *Cucumis melo* seeds was found to have anti-ulcerogenic properties. The reductions in vascular resistance, scavenging of free radicals, and decreased lipid peroxidation, as well as the strengthening of the mucosal barrier, may be the explanation of its gastro-protective effect. These activities are caused by the presence of terpenoids and sterols.

Anti-Cancer activity (Chand *et al*, 2022; Singh *et al*, 2022) : Cucurbitacins are containing oxygen tetracyclic-triterpenes found primarily in the Family cucurbitaceae that have anti-cancer properties. Cucurbitacin B is a known for its anti compound derived from *Cucumis melo* stems. Cucurbitacin B has been shown to have anti-cancer properties in human leukaemia cells. In the K562 leukaemia cell line, cucurbitacin B suppresses STAT3 activation as well as the Raf/MEK/ERK pathway. Cucurbitacin A and cucurbitacin are two

types of cucurbitacin.

Diuretic effects (Wright *et al*, 2007) : In sedated dogs, the diuretic actions of *C. melo* L. was observed. The seeds' ether extract significantly enhanced urine volume and chloride content. The mechanism for increasing chloride levels is thought to be decreased tubular reabsorption and higher glomerular filtration rate.

Immuno-modulator (Parle and Singh, 2011) : The use of a mixture of SOD-rich melon extracts and wheat gliadin (Glisodin®) boosted the generation of type 1 helper T cells (Th1) as well as INFgamma and IL-4 expression. However, IgE (allergic) production remained marginal, whereas IgA production remained unchanged, confirming the concept of Glisodin immunomodulatory ®'s activity. This effect could be due to the gliadin-SOD combination activating antigen presenting cells (APC). The production of nitric oxide or H₂O₂ is induced by this activation, which activates oxidase and Gpx, following by the production of INF-gamma or IL-4 cytokines. The immune system response is then shifted to a Th1 response by both the activated APC17.

Muskmelon health benefits: You must know these

- **Good for your hypertension** : Muskmelon is high in potassium, which is good for your heart rate. Muskmelon's high fibre and moisture content can help to keep blood pressure in check. Muskmelon can be sliced into pieces and eaten as an item of food or at any period of the day.
- **Helps in digestion** : Muskmelon's higher moisture and fibre content is beneficial to your digestive system. It may also aid in the prevention of constipation. Eating muskmelon could help you regulate your bowel movements while also cooling your stomach.
- **Helps with hydration** : Muskmelon is about 90% water. To avoid dehydration, drink enough of water and eat plenty of water-rich fruits and vegetables. Watermelon, mangoes, kiwi, berries, and muskmelon are among the fruits that can be consumed. Every day, eat a fresh serving of fruits.
- **Improves appearance of the skin** : Muskmelon is also beneficial to the skin. Antioxidants in high concentrations can aid in skin purification. It's also high in collagen, which is good for the skin. It is good for your skin if you include it in your diet. It's also utilised in the preparation of face packs.
- **Provides a wide range of nutrients** : Including muskmelon in your diet can provide you with a wide range of nutrients. This calorie-free summer fruit is

good source of fibres, vitamin A, fluoride, potassium, protein, and vitamin C.

CONCLUSION

Cucumis melo is a traditional plant from the Cucurbitaceae family. Musk melon is a beautiful, tasty, and delightful domestic produce that is consumed for its therapeutic and nutritional characteristics. Cucumber is widely used in the cosmetic industry and as a skin moisturiser in traditional medicine. Musk melon is high in antiulcer and antioxidant compounds. The study supported medicinal properties and pharmacological activities of plants such as anti-cancer, anti-diabetic, anti-oxidant, anti-microbial, anti-ulcer, anxiolytic, other medicinal purposes, as well as medicinal uses. Musk melon may be thought of as a unique economical, pleasant, and safe fruit medicine because it is an important component of our biodiversity and because no negative effects have been observed thus far. This review article presents a scientific summary of *Cucumis melo*'s therapeutic characteristics for the scientific orientation of this underutilised medicinal plant.

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