

## Minor Cucurbitaceae Vegetable *Momordica cymbalaria*

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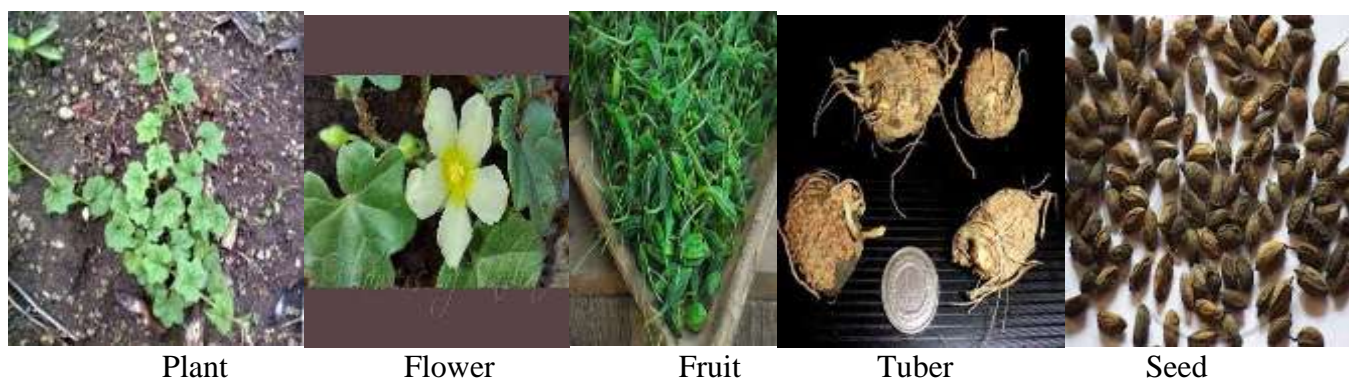
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### SUMMARY

*Momordica cymbalaria* has been studied by many investigators as a medicinal plant possessing various pharmacological and phytochemical properties. The nutritional and economic significance of this species is unexplored due to the lack of its popularity. Phytochemical studies on *M. cymbalaria* have revealed that this plant is rich in tannins, alkaloids, amino acids, vitamin C, carbohydrates, fixed oil, and flavonoids. Owing to anthropogenic activities, such as habitat destruction due to grazing and urbanization, poor seed viability and germination, *M. cymbalaria* is under threat of extinction and has been used in various Asian traditional medicine systems for a long time.

### INTRODUCTION

The little wild gourd, *Momordica cymbalaria* Hook F. is one of the species of the Cucurbitaceae family. The synonyms of this plant are *Momordica tuberosa* (Roxb.) and *Luffa tuberosa* (Roxb.) originated in tropical regions of India and Southeast Asia. *M. cymbalaria* is commonly known as Athalakkai (Tamil) or Kasarakayee (Telugu) or Karchikai (Kannada) or Kakrol (Hindi). Little wild gourd is found in Africa, Pakistan and India. It is a perennial herb with slender, climbing, branched, striped stems. It is found in India, mainly in Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra, and Tamil Nadu, as a weed. Fruits are mainly used for culinary purposes. *M. cymbalaria* is an under-utilized, non-cultivated, season-bound vegetable harvested from wild sources. In Tamilnadu more commonly grown in Virudhunagar district (TN Horticulture Database, 2021-22). It prefers loamy soil and it is highly suitable for cultivation in the rainfed region. In general, these vines grow abundantly in black cotton soils (river banks and fallows). Apart from Tamil Nadu, these fruits are also found in Karnataka and Andhra Pradesh. These vines are similar to gourds but do not require pandal. It spreads on the surface of soil. This vine is a perennial and can live for many years. It dries up every year during the dry season. But the tuber under the soil remains alive. Even if it looks dry above ground, it will sprout again. The leaves are heart-shaped. Male and female flowers are borne solitary on the same vine and flowers are pale yellow in colour. Fruits are rich sources of minerals mainly potassium, calcium, sodium, zinc, iron, ascorbic acid, total carotenoids and lycopene. It is a trailing plant with large turnip-shaped tuberous roots. When the rains begin in July-August, the vines of *M. cymbalaria* begin to sprout from the existing tubers in the soil. In the month of Dec-Jan, the harvest ends. After fruiting, the plants will shrink. However, the tuber in the soil remains intact. This plant is almost like a phoenix bird. Even if it looks dry, it will sprout again. Leaves are deeply heart-shaped at the base, bluntly lobed with 5-7 lobes. Flowers are small, unisexual in nature, white to yellow in colour. Male flowers form in clusters with stalk of 5-30 mm long, thread-like, hairy, ebracteate with 2-5 flowers in racemes with a pale-yellow flower and two stamens for each flower. The female flower is solitary with stalk of 2.8 cm long. The fruits are 2.0 - 2.5 cm long, pyriform with 8 sharp ridges, which is fleshy and dark green. Seeds are 4.6 mm long, ovoid shape, black, smooth and shiny.



Plant

Flower

Fruit

Tuber

Seed

### Nutritional values

The nutrient contents of *M. cymbalaria* are summarized and correlated with the nutritional value of *Momordica charantia*. *M. charantia*, called bitter gourd or bitter melon, is a very popular plant for healing hyperglycemic conditions in the Ayurvedic system of medicine. This plant is a tropical and subtropical vein of Cucurbitaceae. It contains carbohydrates, protein, calcium, potassium, sodium, iron, copper, manganese, zinc, phosphorus, vitamin C, and  $\beta$ -carotenes. Calcium is the most important mineral for the growth of bones and teeth. It also maintains normal cardiac rhythm, blood coagulation, muscle contraction, and nerve responses. *M. cymbalaria* contains a higher amount of calcium than *M. charantia*. The iron content in both vegetables is almost the same. Potassium, sodium, copper, manganese, and zinc are also high in *M. cymbalaria*, whereas  $\beta$ -carotenes content is very low. The fruits are reported to contain citric acid, malic acid, and vitamin C.

### Traditional uses

The *M. cymbalaria* plant is traditionally used for the treatment of diabetes mellitus, rheumatism, ulcers, skin disease and diarrhoea. The fruit of this plant has been reported to possess hypoglycaemic, hypolipidemic, cardioprotective, hepatoprotective, nephroprotective and antioxidant properties. The plant possesses antioxidant antidiabetic and hypolipidemic antihelminthic, antimicrobial and wound healing properties. The plant is applied in local folk medicine as an abortifacient and to fight against diabetes mellitus. The juice of fruits and tea leaves are used to treat diabetes, malaria, colic, sores, wounds, and infections. The juice is also used against worms and parasites. The juice of the fruits, leaves, and seeds possess anthelmintic properties.

### CULTIVATION

*M. cymbalaria* tubers should be sown at a distance of 5 feet and ploughed with a mould plough to cover the soil. The tubers can either be sown whole or it can be cut into pieces to get higher yield. The cut tubers should be dried in the shade for half an hour before sowing. Upto 25 kg of tubers are required to sow an acre of land. As soon as the tubers receives the rain after sowing, the vines begin to sprout and shoot. Pale yellow flowers bloom 25 days after vine growth. Fruits will be available in next ten days. Pick the fruit by holding the vine. The vines should be plucked carefully so as not to break. It should be sent to the market within five hours of picking. It cannot be stocked. It should be cooked within a day of picking. If there is delay in marketing or cooking, the pods will crack. Cooking the cracked pods will decrease the nutrient content. Similarly, cracked pods will not fetch price in the market. After harvesting, the tubers remain dormant in the soil for years to produce fruit. From the month of October to the month of January, fruits are available for four months. The plant will shrivel as the fruit's availability becomes lean. Harvesting should be carried out in the early morning from 7 to 9 and immediately send the pick to the market. Harvest can be made once in three days. The plant is grown along bunds or fences and in the fields.

### REFERENCES

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