

## Miracle Fruit: A Sanative Fruit

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### INTRODUCTION

Miracle fruit, (*Synsepalum dulcificum*), also called miracle berry, evergreen shrub of the family Sapotaceae, with its origin in West Africa. It is grown for its mild fruits that make subsequently eaten sour foods taste sweet. The miraculous property is due to the presence of a glycoprotein ‘miraculin’ found in the pulp of the fruit (Kurihara & Beidler, 1968).

### Plant Description:

The miracle fruit plant is native to tropical West Africa, where it is used locally to sweeten palm wine and other beverages. The miracle fruit plant grows as a dense shrub or small tree, usually not more than 5.5 metres (18 feet) in height in the wild and generally smaller when cultivated. The simple leaves are oval and tapering at the base with smooth margins and feature a waxy underside; they grow in spire like clusters at the ends of small branches. The small white flowers give rise to red drupe fruits that are about 2–3 cm (0.8–1.2 inches) in length. Plants typically begin producing fruit after three or four years and require acidic soil.

### Active component in Miracle fruit

#### *Miraculin*

Miraculin is a homodimeric protein consisting of 191 amino acids. The tasteless miracle berry can modify the sour taste of any food to sweetness (Theerasilp & Kurihara, 1988). On consumption, the miraculin binds with the taste receptors and remain inactive in the mouth. On ingestion of acidic food, miraculin undergoes pH dependent conformational changes to induce the sweet sensation (Koizumi et al., 2011). The stimulus of miraculin lasts for about thirty minutes to one hour. The pH dependent miraculin activation increases within the pH range of 4.5 to 6.5 whereas little response is seen in the range of 6.5 to 7.4.

The pulp contains moisture, carbohydrates, proteins, crude fibre, ash, crude fat, and anti-oxidants. The antioxidant property is higher in the berry flesh than the seed due to presence of phenolic compounds, anthocyanins and tocopherols. There are varying amounts of essential amino acids- leucine (highest) and methionine (lowest).

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#### **Nutritional facts of Miracle fruit**

- Calories: 3.8
- Total Fat: 0.2 g
- Sodium: 0.1mg
- Potassium: 18mg
- Carbohydrate: 0.9g
- Protein:0.1g
- Vitamin A: 0%
- Vitamin C: 12%
- Iron: 0%

#### **Sanative properties of Miracle fruit**

The word ‘sanative’ means the ability to cure or heal. The sanative properties of miracle fruit are anti-diabetic, anti-cancerous, anti-hyperuricemic, anti-haemorrhoids, and it acts as a taste modifier in medicine (Obafemi et al., 2017).

#### **Health benefits of miracle fruit**

- ✓ The miracle fruit contains vitamin C, vitamin A, vitamin E, and vitamin K. Vitamin C stimulates white cell production which is the body’s first defense against infections and pathogen.
- ✓ Miracle fruits have 1 calorie each, 0% fat, and along these lines are astounding regular weight reduction help.
- ✓ Miracle fruits are well known among patients with diabetes and health food nuts in Japan and around the world.
- ✓ Benefits of Miracle fruit are given to victims experiencing radiation treatment, a

reaction of which is unpleasant, metallic tastes inside the mouth.

- ✓ Benefits of Miracle fruit can be utilized as sugar for various food things. Thus, you can decrease calorie utilization by devouring this specific natural product.
- ✓ Counting Miracle Fruits inside your eating routine assists with supporting a solid way of life.

#### **Other uses of Miracle fruit**

Miracle fruit is known to possess several sanative properties. Besides this, it can be used as an artificial sweetener and in preparation of Miracle Fruit Seed Oil (MFSO).

Miracle fruit rich in sanative values helps to reduce diabetics, cancer, hyperuricemia, dysguesia and haemorrhoids. Miracle fruit and its products have a huge potential in the nearby future, as it aids in reducing lifestyle diseases by the decreased use of calorie adding substances. Since it is a tropical shrub, it has ample scope for domestication in the homesteads and also for commercial cultivation for use in pharmaceutical industry.

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