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**Bitter Gourd, A Potential Medicinally Important Health Promoting
Vegetable for Human: An Illustrative Review**

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Abstract: Bitter gourd, bitter melon, or bitter squash, also known as *Momordica charantia* is well known by many other local and regional names. Goya from the indigenous language of Okinawa and karavella from Sanskrit are also used by English-language speakers. The present article exclusively describes and portrays the health benefitting and other medicinally important properties of the vegetable in promoting human health. There lies the reason for its wide use in Asian and African cuisines.

Key words: Bitter gourd, Human health, Medicinal implications

Contents

1. Introduction	346
1.1 Characteristics of the fruit	346
1.2 Benefits to human health	347
2. Conclusion	347
3. References	347

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1. Introduction

Bitter melon, bitter gourd or bitter squash is a tropical and subtropical vine included in the family *Cucurbitaceae*, widely grown in Asia, Africa, and the Caribbean for its edible fruit, which is extremely bitter. It has many varieties which vary in their bitterness and shape of the fruit. The tendrils in the vine are herbaceous in nature and grows to nearly 5 m. The leaves are alternately positioned 4–12 cm across and are simple in arrangement and shape three to seven deeply separated lobes. A separate yellow male and female flowers remain present in each plant. The blooming and flowering occurs during the mid of the Year and fruiting occurs within September to November in the Northern Hemisphere.

Characteristics of the fruit

The fruit is oblong in shape which has a particular warty exterior surface. It is hollow in cross-section, with a relatively thin layer of flesh surrounding a central seed cavity filled with large, flat seeds and pith. In Asian cuisines,

the fruit is consumed in its greener stage and before it starts to turn to yellow. In the younger and green stage the fruit contains appreciable water content and crunchiness in texture as similar to cucumber, chayote or green bell pepper, but it tastes excessively bitter. The skin is thin, tender and can also be consumed along with the fruit. Seeds and pith appear white in unripe fruits; they are not intensely bitter and can be removed before cooking. As the fruit ripens, the flesh (rind) becomes more hard and tough with increased bitterness and too distasteful to eat. On the other hand, the pith becomes sweet and intensely red; it can be eaten uncooked in this state. It is a popular ingredient in some Southeast Asian salads. When the fruit grows fully ripe, it becomes orange in color and mushy, and splits into segments which curl back dramatically to expose seeds covered in bright red pulp.

Medicinal importance and use in human diet

Bitter melon is long known for its use in traditional and alternative medicine with research reports already well documented in Ayurvedic medicine. In various Asian and African traditional and herbal medicine systems it finds its importance in medicinal implications for a long time¹⁻³. In Turkey, it has been used as a folk remedy for a variety of ailments, particularly stomach complaints⁴. It is scientifically proven that bitter melon lowers blood glucose level, dietary carbohydrate digestion, reverses insulin resistance, prevents diabetic complications and protects the body from non-communicable diseases. Feeding trials with insulin resistant or Type II diabetic rats and mice have shown that bitter melon helps to prevent or reverse insulin resistance⁵⁻⁷.

Benefits to human health

The vegetable has other health implications. It is low in calorie, contains phyto-nutrient, polypeptide-P, a plant insulin known to lower blood sugar levels. In addition, it composes hypoglycemic agent called charantin. Charantin increases glucose uptake and glycogen synthesis in the cells of liver, muscle and adipose tissue. The fresh pods are rich source of folates, Vit. B₃, Vit. B₆, Vit. C, and health benefiting flavonoids such as β -carotene, α -carotene, lutein, and zeaxanthin along with minerals such as iron, zinc, potassium, manganese and magnesium^{8,9}.

2. Conclusion

Momordica charantia has many reported research oriented results to strengthen its anticancerous effects. According to the Memorial Sloan-Kettering Cancer Center have a number of purported uses. It has also revealed promising clinical activity in laboratory experiments. However, further researches are in demand to be carried out for further strengthening this issue.

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