

Bottle gourd Reimagined: Exploring Value Added Opportunities

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Introduction

Bottle gourd (*Lagenaria siceraria*) is a versatile crop widely grown in tropical and subtropical regions for its multiple uses. In India, it is commonly known as doodhi, ghia, kaddu or lauki. Its soft texture makes it ideal for individuals with indigestion, biliousness, or those recovering from illness. As a member of the cucurbitaceae family, it shows considerable genetic diversity, enabling it to thrive in various climates including arid, tropical and temperate zones. Notably, it is the only cucurbit that can be sown during the rainy season to produce a harvest in winter.

Bottle gourd is known for its diverse uses and various shapes such as globular, round and bottle shaped, is primarily cultivated in our country. It is considered a highly profitable crop, offering significant income to farmers within a short cultivation period of just two to three months. Apart from the standard parameters of novelty, inventive steps and industrial applicability, innovations involving bottle gourd may also qualify for protection due to their multiple functional applications.

Nutritional composition

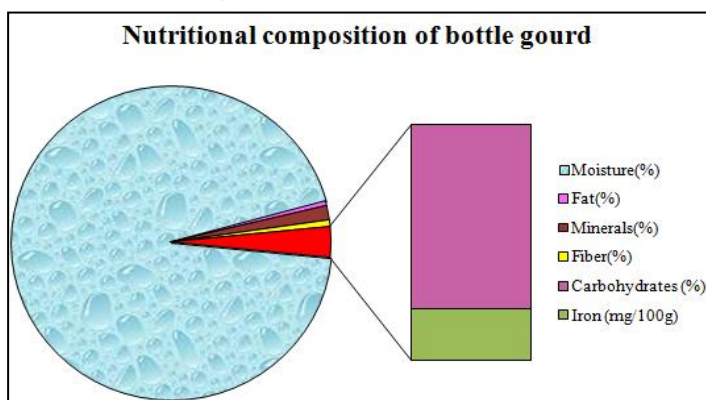


Fig. 1. Nutritional composition of bottle gourd

Among the many vegetables grown in India, bottle gourd (*Lagenaria siceraria*) holds special significance due to its affordability and rich nutritional content. It is a healthy and easily accessible vegetable, consisting of approximately 96% moisture, 0.1% fat,

0.5% minerals, 0.7% fiber and 2.5% carbohydrates. Additionally, it contains 0.7 mg/100g of iron, 0.03 mg/100g of thiamine and 0.2 mg/100g of niacin. Bottle gourd is also a notable source of antioxidants and phenolic compounds, contributing to its health promoting properties (Fig.1).

Health benefits of bottle gourd

- ✓ **Supports Weight Loss:** Bottle gourd is low in calories and high in water content, making it an excellent choice for those looking to lose weight.
- ✓ **Improves Digestion:** Rich in dietary fiber, bottle gourd aids in digestion and helps prevent constipation. The fiber content also promotes healthy bowel movements.
- ✓ **Rich in Vitamins and Minerals:** Bottle gourd is rich in essential vitamins like Vitamin C, Vitamin A and B-complex vitamins. It also provides minerals like calcium, magnesium and iron.
- ✓ **Hydration:** Due to its high water content (about 92%) bottle gourd helps keep the body hydrated, especially in hot weather. It's also beneficial for detoxifying the body.
- ✓ **Regulates Blood Sugar:** The vegetable has a low glycemic index, which means it can help regulate blood sugar levels and is safe for diabetics to consume in moderate amounts.
- ✓ **Boosts Liver Health:** The juice of bottle gourd is often recommended for promoting liver health, as it is believed to detoxify the liver and help in the removal of toxins from the body.
- ✓ **Improves Urinary Health:** Due to its diuretic properties, bottle gourd helps in flushing out toxins through urine and supports kidney function.

Value added products from bottle gourd

Bottle gourd can be used to create a variety of value-added products, expanding its uses beyond just fresh consumption. These products often enhance its

shelf life and offer convenience or added health benefits. In bottle gourd many value added products were developed such as pickle, juice, Pedha, sweet salted beverage, powders, halwa and burfi. Among these products some products are discussed below,

Bottle gourd petha

Petha is a traditional Indian sweet that has been primarily made from ash gourd (white pumpkin), especially famous in regions like Agra. It is known for its translucent appearance, soft texture and juicy sweetness, often flavored with cardamom, kewra or rose essence (Fig. 2).

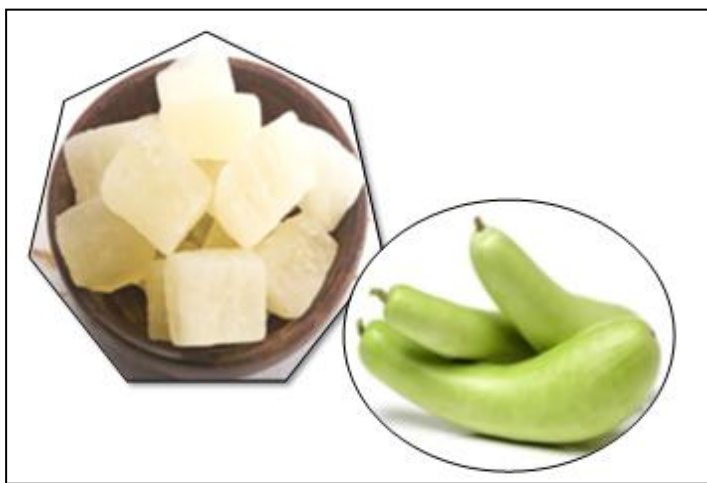
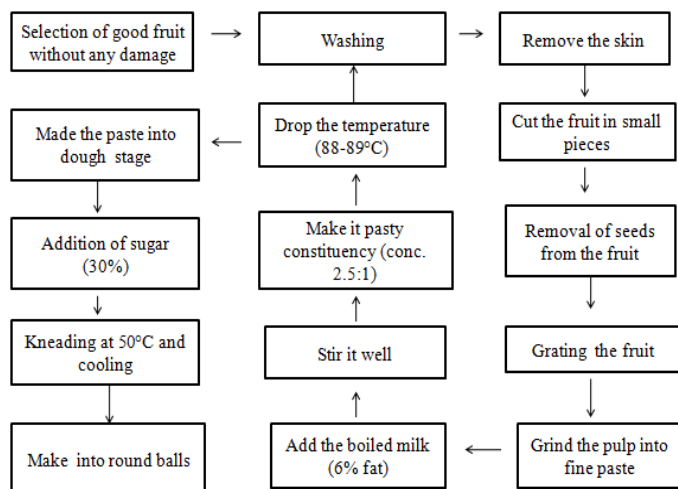


Fig 2: Bottle Guard Petha



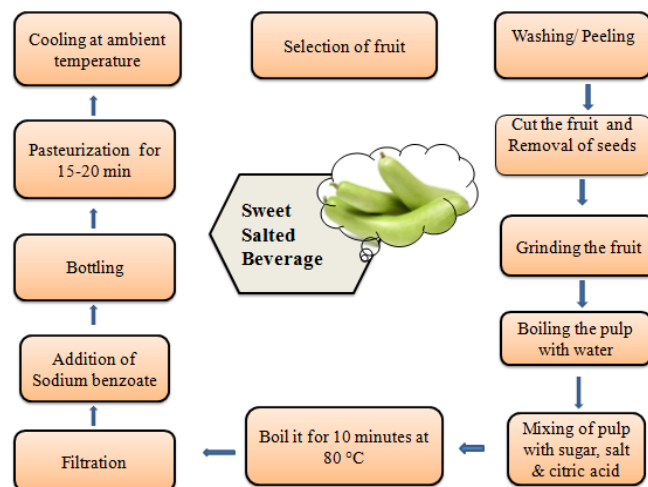
Flowchart of preparation of Bottle Gourd Peth

However, in recent times, bottle gourd (*Lagenaria siceraria*) has emerged as an alternative ingredient for making petha due to its similar texture and high moisture content. Bottle gourd is not only easily available and cost effective but also offers added nutritional benefits such as being low in calories and

rich in dietary fiber, antioxidants, and essential minerals. The use of bottle gourd in petha preparation provides a novel way to utilize this versatile vegetable, especially in regions where ash gourd may be less accessible. This adaptation helps reduce postharvest losses and supports innovation in traditional sweet making practices.

Sweet salted bottle gourd beverage

The sweet salted bottle gourd beverage is a refreshing and health boosting drink made from lauki (bottle gourd) a vegetable known for its cooling and hydrating properties. Lightly sweetened with honey or sugar and enhanced with a dash of salt and lemon for a refreshing twist, this beverage serves as a perfect cooler during summer or a revitalizing drink after physical activity. It's rich in water content, low in calories and aids in digestion, detoxification and hydration.



Flow chart of sweet salted bottle gourd beverage

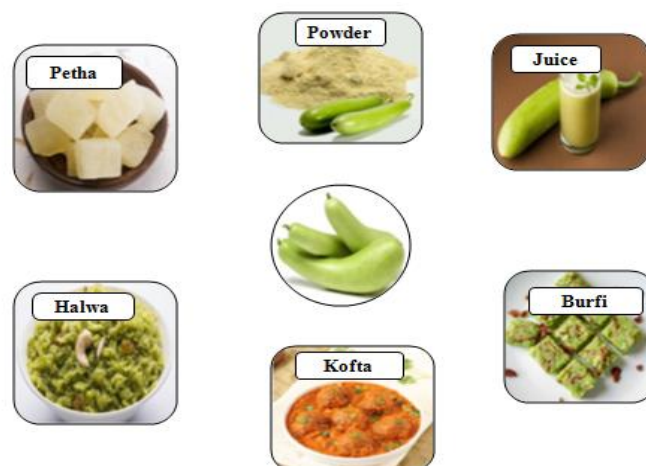


Fig 3. Value added products from Bottle gourd

Conclusion

Bottle gourd is a highly nutritious and versatile vegetable that offers immense potential for value addition through various products such as juices, sweets (like petha and halwa), snacks, pickles and beverages. Developing and promoting these value-added products not only enhances the economic value

of the crop but also helps reduce postharvest losses. Moreover, these products cater to growing consumer demand for healthy, natural and functional foods. With proper processing, packaging and awareness, bottle gourd-based products can contribute significantly to nutritional security and rural income generation.

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