



Processing and Nutritional Value of Apple Ber Fruit Leather

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Introduction

Ber (*Ziziphus mauritiana*) belonged to the family Rhamnaceae that consist of 45 genera and 550 species. It is widely distributed in tropical and subtropical climate in the world. (Mukhtar et al., 2004). Ber has been recognized as a useful edible fruit since antiquity in India. There are two distinct groups of ber found in India (1) Chinese ber (*Ziziphus jujube*), is an upright tree of 10 m height, bearing dark red fruit. (2) Indian ber (*Ziziphus mauritiana*) is spreading tree having drooping branches with its leaves rusty on lower surface and it is green to yellow leaves and fruits (Pareek, 2001)

Apple Ber is a Thailand mixture ber. The essence of these ber is Sweet, Crispy & Juicy. The heaviness of every plum is around 100-125gm. It appears to be like green Apple. That is the reason it named as apple plum or apple ber. Its farming is currently trending fruit farming. It has lots of advantages over traditional Plume farming. It can be used for the preparation of murabba, leather, chutney, squash or nectar and ready to serve.

Medicinal Properties

Ber is one of the oldest Indian fruits and considered as "Wonder fruit for health" because of its unique qualities. It has played an important therapeutic role from time immemorial and is frequently recommended for its synergic effect in both the Ayurveda and Unani system of medicine it is a rich source of vitamin c and its content as compared apple fruit. (Meena et al., 2009). There is large number of traditional uses that are not necessarily base on knowledge of constituents. According to Ayurveada, the fruit is sour and sweet and cooling, a cures coughs biliousness and headache. Fruit is employed as an antidote poisoning, abdominal pain in pregnancy and externally in poultice an application for wounds (Preeti and Tripathi, 2014).

Nutritional Composition

Nutritional Composition of Apple Ber (per 100g edible portion)



Nutrient	Amount
Moisture (%)	75-85
Energy (kcal)	70-90
Carbohydrates (g)	15-20
Protein (g)	0.8-1.2
Fat (g)	0.1-0.3
Dietary Fiber (g)	0.5-1.5
Vitamin C (mg)	60-120
Vitamin A (IU)	Trace
Potassium (mg)	250-400
Calcium (mg)	20-30
Phosphorus (mg)	20-25
Iron (mg)	0.5-1.5
Ash (g)	0.3-0.8

Leather

Fruit leathers are fruit base dehydrated product. They are chewy and tasty dried slabs made by putting fruit pulp into a mouldy surface. On drying it is put out and rolled. It has given the name due to its leathery appearances. Making leather benefits, in utilizing less sugar and more fruit Flavors, useful for diabetic and health-conscious consumers. Leather can be made from individual and mixed fruit in any proportion. It can be prepared from fresh, frozen and canned fruit. Drying of fruit leather involves removing of moisture, thus microbes can't grow. It also inactivates enzymatic activities. Moisture reduction makes it shrinked to occupy less space and facilitate transportation.

Preparation of Apple Ber Leather

Step 1- Selection of Fruits: Fully ripe, healthy, and uniform apple ber fruits are selected.

Step 2- Washing and Sorting: Fruits are washed thoroughly to remove dirt and impurities.

Step 3- Pulp Extraction: Seeds are removed and pulp is extracted using a pulper or manually.

Step 4- Formulation: Common ingredients added-

Step 5- Heating: The pulp mixture is heated to dissolve sugar and ensure uniform mixing.

Step 6- Spreading: The prepared pulp is spread uniformly (5–8 mm thickness) on trays lined with butter paper.



Step 7- Drying: Drying is done using the cabinet dryer (50-60°C), Sun drying or room temperature drying, drying continues until moisture reduces and a leathery texture form.

Step 8- Cutting and Packaging: The dried sheet is cut into desired shapes and packed in airtight materials.

Storage and Shelf Life of Apple Ber Leather

Storage is essential to maintain the quality and shelf life of apple ber leather. The product should be stored under the different condition:

- Ambient temperature (20-25°C): 3-6 months.
- Refrigerated storage (4-10°C): 6-9 months.
- Vacuum packaging: 9-12 months.

Conclusion

Apple ber leather (*Ziziphus mauritiana*) represents an effective value-added product that combines the nutritional benefits of fresh ber with improved shelf life and consumer convenience. The conversion of ber pulp into leather through standardized processing techniques, including pulping, formulation, controlled drying, and appropriate packaging, helps minimize post-harvest losses while maintaining desirable quality attributes. Ber leather is a rich source of carbohydrates, dietary fibre, vitamin C, minerals, phenolic compounds, and antioxidants, making it a nutritious functional snack. Product quality is influenced by factors such as fruit maturity, ingredient formulation, drying conditions, and storage environment. Blending ber with other fruits has also been reported to improve texture, flavour, and overall acceptability. With increasing demand for natural and minimally processed foods, ber leather has considerable potential for commercial production and market expansion. Future research should focus on optimizing processing technologies, improving nutrient retention, evaluating storage stability, and developing innovative formulations to enhance the nutritional and functional properties of ber leather and support large scale production and market acceptance.



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