

KARONDA: AN UNDERUTILIZED FRUIT WITH TREMENDOUS HEALTH BENEFITS AND DELICIOUS RECIPES

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Underutilized fruit crops are the fruits which have high nutritional value but are not widely grown, not commercially cultivated and hence rarely found in the market. In India and neighboring countries various native fruits like karonda, ber, aonla, bael fruit, jamun, kokum are underutilized. These fruits are having numerous foods, medicinal and nutritional properties. At present status the diet of the large group of population is deficient in many of nutrients hence suffered from various nutritional deficiency disorders. So if such underutilized fruits and their value added products are utilized properly that can help to recover risk of nutritional deficiencies. In this article potential health benefits and some recipes of one of the underutilized but commonly occurred fruit Karonda (*Carrisa caronda*) are reviewed.



INTRODUCTION:

Under the basic food groups fruits are considered as protective foods as they protect the body against various diseases. Fruits are rich in minerals, vitamins especially vitamin C, A and phytochemicals. They are rich source of soluble dietary fibres which helps in smooth bowel movement, lowers the cholesterol level in the body. They also give abundant antioxidants that help to keep diseases away from the body. Due to all these facts fruits have health promoting properties and they become important from human health point of view.

As a part of protective food use of plants having various medicinal and nutritional properties in controlling of different disorders is an age-old practice. Today's population become health conscious they like to understand health benefits of anything which is nourishful but neglected. Underutilized or less known fruits are those fruits which have greater values both in nutritional and medicinal characteristics.

In India most common underutilized fruits are Aonla (*Emblica officinalis*), Bael (*Aegle marmelos*), Jamun (*Syzygium cumini*), Wood apple (*Feronia limonia*), Ber (*Ziziphus mauritiana*), Karonda (*Carissa carandus*), Tamarind (*Tamarindus indica*) and Chironji (*Buchanania lanzan*) etc.

Present article is mainly emphasizing on nutritional, health benefits and some recipes of Karonda (*Carissa carandas*). Karonda (*Carissa carandus*) belongs to the family Apocynaceae. Worldwide the plant is found in Nepal, Afghanistan, India, Pakistan, Australia, South Africa, Malaysia, Java and Sri Lanka. In India is cultivated in the states of Maharashtra, Bihar, West Bengal, Gujarat, Madhya Pradesh, Orissa, Chhattisgarh, Rajasthan and in the Western Ghats. In Maharashtra majorly found in area like Kolhapur, Ratnagiri and Pune district. The shrub is commonly known as Karwand (Marathi), Karamardaka (Sanskrit), Koromcha (Bengali), Bengal currant (South India), Karja tenga (Asam) and Kilaakkaai (Tamil).

NUTRITIVE VALUE:

Taste of karonda fruit is sour, sweet and astringent. The colour is pinkish white and becomes red to dark purple when ripe. They are a very rich source of iron and contain a good amount of vitamin C, B1, B2, protein, carbohydrate, fat, fiber and calcium.

Table 1. Proximate composition of karonda fruit (fresh fruit).

Constituent	Values/100 g edible portion)
Moisture	91.00
Protein	1.10
Carbohydrates	2.90
Fat	2.90
Fibre	1.50
Calorific value	42.00
Minerals	(mg/100 g)
Calcium	21.00
Phosphorous	38.00
Iron	39.00

*Anon. (1950, 1979)



HEALTH BENEFITS:

Many researches has shown that karonda contains important plant chemicals having antioxidant, analgesic, anti-inflammatory, liver protecting, anti-hyperglycemic, hypolipidemic and wound-healing properties. Because of all these properties there are numerous health benefits for the human being.

1. Improves digestion:

The percentage of soluble fibre helps to smooth bowel movement thus improves functioning of digestive system. The fruits contain pectin which makes it beneficial for improving digestion.

2. Antibacterial properties:

According to research published in the Asian Journal of Plant Science and Research, a methanolic extract of karonda leaves has antimicrobial properties against *S. aureus* and *E.coli*.

3. Skin health:

Ayurveda supports the use of karonda in treating as well as preventing skin infections, skin diseases as they contains wide variety of flavonoids, phenolic acids and other phytonutrients that provide it with antioxidant, anti-inflammatory, anti microbial and antifungal properties.

4. Improves mental health:

Regular consumption of karonda fruit is beneficial for improving mental health. The presence of magnesium along with the vitamins and tryptophan helps to stimulate the production of the neurotransmitter- serotonin which works towards bettering overall mental well being.

5. Karonda for liver:

Carissa carandas root extract protects the liver against toxicity and inflammation by reducing the activities of liver enzymes and the oxidation of lipids. Along with this the extracts can significantly increases the levels of uric

acid, glutathione, catalase and protein, thus the weight of the liver is well maintained and the risk of liver disease is reduced significantly.

6. Karonda for diabetes:

As per study at Nagpur University extract of unripe karonda fruit could reduce blood sugar in lab mice that had been given alloxan to induce diabetes. They found that depending on whether it was a methanol extract or an ethyl acetate soluble fraction, at a dose level of 400mg/Kg of mouse weight karonda fruit extract reduced blood glucose levels in mice by 48% or 64.5% respectively as compared with control diabetic mice that were without karonda fruit extract treatment.

7. Use in ayurveda:

According to a paper published in the Journal of Ethnopharmacology, unripe karonda fruits were used in ayurveda as: An astringent, appetizer, antipyretic, antidiabetic, gastrointestinal disorders like indigestion, constipation, diarrhea and mental illness.

SOME DELICIOUS RECIPES:

Several products are prepared by using karonda like juice, jam, syrups, pickles, chutney, popsicle, kheer etc. Let us look of some-

1. Kheer:

Ingredients:

1. Dry karonda - 150g
2. Fresh karonda- 150g
3. Kewra water - Few drops
4. Basmati rice -150g
5. Milk – 1.5ltr
6. Sugar – 250g
7. Rose petal for garnishing

Recipe:

1. Boil milk in a deep utensil.
2. Mix washed and drained rice with milk and keeps cooking on medium flame.
3. In a separate pan add karonda without seeds with half of sugar and cook until sugar melts

Table 2. Proximate composition of karonda fruit (dry fruit)

Constituent	Values/100 g edible portion)
Moisture	18.20
Protein	2.30
Carbohydrates	67.10
Fat	9.60
Calorific value	364.00
Minerals	(mg/100 g)
Calcium	0.16
Phosphorous	0.06
Iron	39.10
Mineral matter	2.80

*Anon. (1950, 1979)



and mixture looks like a paste.

4. Once the rice gets cooked add remaining sugar and kewara water.

5. Then switch off the flame and mix it into the karonda paste with a spatula.

6. Pour into a serving bowl, garnish and serve hot or cold.

2. Popsicle:

Ingredients:

1. Fresh karonda - 250g
2. Yogurt - 250g
3. Honey - 50g

Recipe:

1. Squeeze fruit and remove seeds.
2. Grind them in a food processor on high speed.
3. Pour this thick liquid into a large bowl.
4. Add honey and stir properly.
5. Then add yoghurt and very gently mix everything together.
6. Pour mixture equally into each popsicle mold.
7. Freeze for 4 to 6 hours overnight.

8. Move the popsicle molds under warm water to easily remove.

3. Chutney:

Ingredients:

1. Karonda- 300g
2. Cumin seed, ginger, chilli powder- 5g each
3. Clove, garlic- 1g each
4. Cinnamon- 1.5inch
5. Green coriander- ½ cup
6. Salt As per taste

Recipe:

1. Split karonda & remove seeds.
2. Grind seedless karonda with salt, chilli powder, cumin seed and all spices together.
3. If it becomes thick add some water.
4. Pour chutney in a bowl, add lemon juice and serve.

4. Karonda juice:

Ingredients:

1. Karonda fruits- 10g

2. Water- 1 cup
3. Salt, sugar- As per taste

Recipe:

1. Cut the fruits and remove its seeds.
2. Blend it and filter.
3. Add sugar, salt and serve chilled.



5. Karonda pickle:

Ingredients:

1. Karonda- 200g
2. Green chillies- 3 no.
3. Garlic pods- 5 no.
4. Coriander powder- 8g
5. Cumin seeds, fenugreek seeds- 3g each
6. Mustard seeds- 1.5g
7. Turmeric powder- 1g
8. Salt- As per taste
9. Mustard oil- 25ml

Recipe:

1. Select good quality karonda fruits, wash and wipe clean.
2. Split the fruit in longitudinal halves & discard the seeds.
3. Heat a heavy bottom pan & add mustard oil to it. Bring it to smoking point & turn slow the gas.
4. Add mustard & cumin seeds and let them crack and twitch.
5. Add fenugreek seeds & let it turn a slight golden in colour.
6. Add chopped green chillies, cutted garlic pods along with karonda fruit to the crackling mixture & stir it well. Keep the flame low.
7. Add turmeric powder and other spices along with salt.
8. Stir it well so that the fruits are covered properly with the spices.
9. Turn off the gas & let the mixture cool at room temperature.
10. Bottled it in air tight container.

CONCLUSION:

In spite of having good nutritional profile, bioactive compounds and wide occurrence karonda is one of the underutilized fruit crop. Creating awareness regarding use of karonda and its value added products would help against nutrition deficiency disorder to some extent.