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Karonda: A Medicinal Plant with Immense Economic Potentials

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SUMMARY

Karonda (Carissa carandas) belong to genus Carissa and family Apocynaceae. It is native and customary throughout much of India, it had been introduced into Java way back as a hedge and has run wild around Djakarta. Karonda is used in medicine. By this, many types of diseases are stopped. The plant is located to be allotted with inside the Himalayas at elevations of 300-1800 meter, withinside the Siwalik Hills, the Western Ghats, in Nepal, Sri Lanka, Java, Malaysia, Afghanistan, Pakistan, India, Myanmar, South Africa and Australia. It is a richest source of iron. Regular plantations of Karonda are very not unusual place in Varanasi district of Uttar Pradesh. Fruits, bitter and astringent in taste, are a completely wealthy supply of iron additionally containing exact quantity of vitamin C. Karanda could be very beneficial in curing anemia. The culmination has antiscorbutic residences additionally.

INTRODUCTION

The Karonda (Carissa carandas L., 2n=22), belongs to the family apocynaceae is a hardy, evergreen, spiny and indigenous shrub grown in India. There are approximately 25 species of genus Carissa, out of which 5 species have originated in India (*Carissa carandas* L, *Carissa spinarum* L, *Carissa congesta*, *Carissa edulis* and *Carissa grandiflora*). Carissa species has a lot socio monetary significance in tribal are of India. It is properly grown Rajasthan, Madhya Pradesh, Uttar Pradesh, Bihar, West Bengal, Maharashtra (Sawant *et al*., 2002). Being very hardy, it may be without difficulty grown from arid to sub tropics and tropics climatic condition. As it isn't always unique a rained crop, the plant hardly ever wishes any care and offers yield with the minimal management. Karonda is a fruit of dry regions containing honest quantity of nutrition C and minerals.

The sweeter fruits of Karonda may be eaten raw but the more acid ones are best stewed with plenty of sugar. The ripe result includes excessive quantity of pectin. Therefore, it's also utilized in making jelly, jam, squash, syrup, tarts and chutney, that are of brilliant call for in global market. The end result, leaves and bark are wealthy in tannins (Morton, 1987). The Karonda tree has many makes use of as it's far used in conventional medicine, and present-day scientific studies has observed that it has many useful properties. Its leaves feed the tussar silkworm. The fruits have astringent properties and have been used for tanning and dying. Traditionally Karonda has been used to deal with anorexia and insanity.

Different Names of Karanda

English (Bengal-currants, Carandas-plum, Karanda, Christ thorn, Christ's thorn, Karaunda, Karanda, black currants), Hindi (karaunda, garinga, karonda), Bengali (Koromcha), Kannada (Kauli hannu, karande kai,

doddakaala, garchinikai, karinda), Malayalam (Kalachedi, Karakka, karaka, karanta, karekkai, panimarda, susena), Marathi (Karvand, kaarandi, boronda, karanda), Sanskrit (Avighna, karamarda, Karonda), Tamil (Kalaaha, kila, Kilaakkaai, Killeekkaai, Kalakkai, aintirikam, cenkala, karavinta, kilamaram) and Telegu (Peddakalavi, kalay).

Plant Description of Karonda

Carissa carandas is an evergreen deciduous small to big shrub height 2-4 m tall. The stem is rich in white latex and the branches contain sharp spines. Flowers are small, diameter of flower 3-5 cm, with white colour. The fruit is a berry, which is formed in clusters of 3-10 fruits. fruits are pinkish white and become red to dark purple when ripe. Ripe fruit colour from white, green and pinkish red depending on the genotype. Flowering month January-February and fruits mature in May-June. Fruits are generally harvested at immature stage for vegetable purpose, fully ripen fruits are consumed fresh or processed. The leaves are oblong and conical, 4-6 inch long and 2-3 inch wide, green on the top and brown below. Flowers: White or yellowish flowers are found in groups. Fruit: The are avoid with 5-1 hard angles curving upwards, glabrous with five to seven wings, woody and fibrous. Bark: The bark is smooth gray. The bark is thick.

Table 1: Nutritional value of Karonda fresh and dried fruits

Nutrients	Nutritional value (100 gram)	
	Fresh	Dried
Energy (Calorie)	42	364
Moisture (%)	91	18.2
Protein (%)	1.1	2.3
Carbohydrate (%)	2.9	67.1
Fat (%)	2.9	9.6
Mineral (%)	-	2.8
Calcium (mg)	2.1	160
Phosphorus (mg)	28	60
Iron (mg)	-	39
Vitamin –C (mg)	200-500	1.0

Cultivation

Climate and Soil:

Since *Carissa carandas* is a completely rarely and drought tolerant plant, it flourishes nicely all through the tropical and subtropical climates. Heavy rainfall and waterlogged situations aren't desirable. It may be grown on a huge variety of soils which include saline and sodic soils.

Improved Varieties:

Pant Manohar, Pant Sudarshan, Pant Suvarna, Konkan bold, CHES K-II-7, CHESK-35.

Propagation:

Carissa carandas propagated by sexual and vegetative propagation. Experimental add India has shown that cuttings from mature plants might not root at all; 20% of hardwood cuttings from trimmed hedges have rooted in November but not when planted earlier. Cuttings from nursery stock gave best results: 10% rooted in late September; 20% in early October; 30% in late October; and 50% in early November. altogether cases, cuttings were pre-treated with auxin at 500 ppm in 50% alcohol. The maximum number of roots, rooting percentage and survival percentage was recorded under 8000 ppm concentration of IBA and the minimum rooting percentage was observed under control treatments (Deepak *et al*. 2015). IBA is that the most promising phytohormone inducing rooting quickly. Exogenous application of IBA accelerates the speed of rooting, increase final rooting percentage and number of roots. Indole-3-butyric acid (IBA) is the maximum widely used root promoting

chemical withinside the nursery trade, alongside with 1-naphthaleneacetic acid (NAA), due to the fact it's far dependable over a huge variety of concentrations (Singh *et al*. 2011).

Planting:

Pits of 60 cm x60cm x 60cm size are dug and full of natural manure and soil, in a 1:2 ratio. The planting distance for fence/ hedge need to be 1-1.5 meter, requiring 300-400 plant life for planting alongside the boundary of 1 hectare field. If a one kind planting is to be raised, a planting distance of 2 m x 2 m need to be enough.

Manure and Fertilizers:

Karanda plant life grown as defensive hedge are hardly ever manured or fertilized. Manuring, however, is beneficial. Otherwise, its plant life slowly gets exhausted after taking 2 year and begin displaying signs and symptoms of die back. Therefore, 15-20 kg well-rotten farmyard manure or compost/plant to be implemented earlier than flowering.

Irrigation:

Water requirement of Karonda could be very low. Irrigation after planting and manuring is essential. However, if there's no rain for the duration of the improvement of fruit, one irrigation can be given. This will boom the fruit size.

Training and Pruning:

Regular plantations of Karonda may be trained on single or double stem. Therefore, extra undesirable shoots or laterals are eliminated from time-to-time to present the plant preferred shape. Suckers springing up from diseased dried twigs must be eliminated.

Weed Management:

After irrigation, weeding should be done by which development of plant is done properly. It is necessary to weeding after every irrigation in Karanda.

Insect and Disease Control

Leaf eating caterpillars: monocrotophos 2ml/l.
Fruit fly *bactrocera dorsalis*: Sanitation.
Twig dieback *Diplodia natalensis*: Pruning.
Stem canker *Dithiorella sp*.: Effected branches remove and burn.
Anthracnose: black brown lesions, use copper-based fungicides copper oxide.

Karonda as Medicinal Trees

The karonda fruit is an astringent, antiscorbutic and as a treatment for biliousness and beneficial for therapy of anemia. In traditional medicine the fruit is used to improve female libido and to remove worms from the intestinal tract. The fruits have anti-microbial and antifungal properties and its juice used to clean old wounds which have become infected. The juice may be carried out to the pores and skin to alleviate any pores and skin problems. Traditionally Karonda has been used to deal with anorexia and insanity. A leaf decoction of Karonda is used towards fever, diarrhoea, and earache. The roots function a stomachic, vermifuge, treatment for itches and insect repellent.

Health Benefits of Karanda

The complete plant has medicinal values. Carissa carandas flowers are used to remedy diverse diseases. It is very high sources in iron, vitamin C, vitamin A, phosphorus and calcium. Anemic disease is controlled by iron found in Karonda. Vitamin C is found in high amounts in Karonda. By which scurvy disease is controlled. Karanda fruit has an Anthelmintic effect withinside the Body which expels the Parasitic Worms. It eliminates impurities from the blood. Eating Karonda mature fruit removes the disease of anorexia. Epilepsy disease is

controlled by the use of Karonda leaves. Abdominal pains, dysuria, menorrhagia and ulcer are controlled using the root of Karonda. It is fine in decreasing the blood sugar quantity in curing Diabetes.

Other Uses

The ripe fruit emits a gummy latex when it is cooked, but yields a rich crimson juice which clears when it is cooled, so that is used a fresh cooling drink in warm weather. Usually, the fruit is pickled earlier than it receives ripened. Ripe Karonda fruit carries excessive amount of pectin consequently it's also utilized in making jelly, jam, squash, syrup, tarts and chutney.

Different Parts Uses of Phalsa

Fruit: Employed as agents in tanning and dyeing. It produces berry-sized fruits that are commonly used as a condiment in Indian pickles and spices. Ripe fruit can be eaten fresh; Good substitute for Gooseberry.
Roots: Fly replellent.
Leaves: Fodder for the tusser silkworm
Ripe fruits: Jam, jelly, juice, puddings, juice, wine
Unripe fruits: Pickles & chutney
Woods: For fashioning household utensils, fuel
Thorny branches: Fencing material

CONCLUSION

Karonda is a fruit of arid resins, it contains many types of vitamins and minerals, it is the main source of iron. It can be produced in any type of soil. Less money is required to produce it. It is used to cure many types of diseases. The farmer can get more benefits by cultivating karonda.

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