

**ROLE OF *CARISSA CARANDAS* IN MEDICINE - A REVIEW**

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***Corresponding author e-mail:** ambikachauhan671@yahoo.com and intelli.lpu@gmail.com**ABSTRACT**

Carissa carandas is one of the most common species of the genus "*Carissa*" and used as a traditional medicine which has received scientific awareness for its general ethnomedicinal applications. Present study focused on its nutritional composition, phytochemical compounds, therapeutic action and ethnopharmacological uses (cardioprotective effect, anti-diabetic activity, anti-carcinogenic, anti-pyretic, hepatoprotective activity).

Keywords: *Carissa carandas*, ethnomedicinal, cardioprotective effect, anti-carcinogenic activity.

INTRODUCTION

Carissa carandas, commonly known as "karonda" is a species of a flowering shrub. It is an evergreen deciduous small to big shrub typically 2-4 m tall. The stem is rich in white latex and flowers are short, with white colour, having diameter of 3-5 cm. The fruit is a berry, which is produced in clusters of 3-10 fruits. Flowering starts in the month of January- February and fruits mature in May-June. Fruits are generally harvested at immature stage for vegetable purpose, fully ripen fruits are consumed (Youngken et al., 1950). Karonda fruit is a rich source of iron and Vitamin C. Mature fruit contains high amount of pectin therefore, besides being used for making pickle, it can be used for making jelly, jam, squash, syrup and chutney (Samuelsson et al., 1992).

NUTRITIONAL COMPOSITION

According to United State Department of Agriculture (USDA, 2013), the proximate nutritional composition of *Carissa carandas* fruit in mg / 100 gm dry weight is given in Table 1. *Carissa carandas* is much admired medicinal plant and used to heal multiple diseases. The comprehensive pharmacological actions of *Carissa carandas* are given below:

DIABETES

The effect of the aqueous extract of *Carissa carandas* were orally administered to rats with the doses (250 mg/kg, 500 mg/kg and 1000 mg/kg) and after 4, 8 and 24 hours these proved very effective to reduce blood glucose levels and has hypoglycemic and antihyperglycemic effects (Swami et al., 2010). The methanol extract of leaves of *Carissa carandas*, were orally administered to mice with doses of 50, 100, 200 and 500 mg per kg body weight. After treatment it proved very effective in reduction of serum glucose concentrations (15.6, 17.8, 20.0, and 47.8 %) and act as antihyperglycemic drug (Rahman et al., 2011.)

CARDIOPROTECTIVE ACTIVITY

Intravenous bolus injection of *Carissa carandas* extract in the dose of (45mg/kg) was administered and it helped in the reduction of arterial blood pressure, heart rate frequency and found to have acute hypotensive effect in normal rats (Shamim and Ahmad, 2012). The mixture of aqueous ethanol and extract of *Carissa carandas* (1:1) was orally administered in Egg yolk induced hyperlipidemic rats and proved beneficial to decrease the body weight, cholesterol, triglycerides, HDL and LDL (Sumbul and Ahmad, 2012).

HEPATOPROTECTIVE EFFECT

Ethanollic extract root of *Carissa carandas* orally administered to rats with doses of 100, 200 and 400 mg/kg have proved effective to decrease the activity of serum marker enzymes, bilirubin and lipid peroxidation and has a hepatoprotective effect (Hedge and Josh, 2009). The roots of *Carissa carandas* was orally administered in rats with a dosage 100 mg/kg and 200 mg/kg for the treatment of liver disease and jaundice. It proved effective to decrease serum transaminase (SGPT & SGOT), alkaline phosphate, bilirubin and lipid peroxidation (Bhaskar and Balakrishan, 2009).

ANTICONVULSANT

The ethanollic extract of the roots of *C. carandas* orally administered to mice with the dosage of 200 and 400 mg/kg showed 25 per cent and 50 per cent reduction in the duration of seizures and act as anticonvulsant effects (Hedge et al., 2005).

DIURETIC ACTIVITY

The methanolic extracts of leaves of *Carissa carandas* administered to mice with dosage of 200

and 400 mg/kg have proved effective for electrolyte loss ratio i.e. (Na^+/K^+ excretion ratio was 1.46 and 1.43), thus known to act as diuretic activity (Saha et al., 2010).

ANTI-PYRETIC EFFECT

Carissa carandas aqueous extract was orally administered to rats with a dosage 100mg/kg body weight and proved effective for the reduction of formation of edema induced by carrageenan after 2 hours and act as antipyretic activities (Bhaskar and Balakrishan, 2009). It was also found to have analgesic and anti inflammatory properties.

CONCLUSION This paper has tried to emphasize on nutritional and medicinal value of *Carissa carandas* plant. Recent findings and present literature provides essential information about the benefits of *Carissa carandas* which can be valuable in generating awareness among people to control various diseases and to improve their health and nutritional status in a better way.

SCIENTIFIC CLASSIFICATION

Kingdom: Plantae Magnoliophyta Class: Magnoliopsida Order: Gentianales Family: Apocynaceae Genus: <i>Carissa</i> Species: <i>C. carandas</i>	Divison:	
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PHYTOCHEMICAL COMPOUNDS

FRUIT	Leaf	Root
2-phenyl ethanol, linalool, β -caryophyllene, iso amyl alcohol, tartaric, oxalic, citric, malic, malonic and glycine, glycolic acids, phenyl alaline, glucose, galactose and a novel triterpenic alcohol, alaline, cerine, lupeol, benzyl acetate(Chandra, 1972).	Triterpenes, ursolic acid, tannins, carissic acid (Naim, 1988).	carinol, carissone, carindone, digitoxigenin, lignin, glucose, oderoside H, D-digitalose and 2-acetylphenol (Singh, 1972).

TABLE1. The proximate nutritional composition of *Carissa carandas* fruit:

Nutrient	Percentage
Protein	2gm
Carbohydrates	67gm
Total Fat	10 gm
Fibre	Nil
Mineral	3gm
Calcium	160gm
Phosphorus	60gm
Iron	39mg
Moisture	18gm

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