



Vitamin C stuff in the unripened and ripened fruits of *Carissa carandas* L. from Chandgad region of Kolhapur District, Maharashtra.

Dr. Anjali .P. Patil

Department of Botany, R. B. Madkholkar Mahavidyalaya, Chandgad,
416509, Maharashtra, India

*Corresponding author: Dr. Anjali Pandurang Patil

Abstract :

Present research studies aimed to explore usually utilized angiospermic, dicotyledonous medicinal plant *Carissa carandas* L. from Chandgad, District- Kolhapur, Maharashtra. This plant belongs to the family Apocynaceae and it is commonly well recognized as karvand, Dongri Maina or Ranmeva. In this paper I have reported moisture %, pH and biochemical constituent vitamin C which is most plentiful active principle from the fresh unripened and ripened fruits of the plant. Present investigation was undertaken to study plant chemical resource and medicinal traditional uses knowledge about the karvand. Medicinal plants have curative properties due to presence of various complex chemical substances. I have reported 71.5 % moisture unripened fruits pulp, 61 % moisture ripened fruits pulp. pH of unripened fruits pulp juice was 5 and 6 pH was observed pulp juice ripened fruits, 67 % moisture ripened fruits pulp. Height of the plant was 4 m. of the Fresh weight and dry weight unripened fruit was 3.80 gm and 1.10 gm. Fresh weight and dry weight ripened fruit was 4.15 gm and 1.45 gm. 11.38 mg/10 ml Vitamin C from unripened and 7.72 mg/10 ml Vitamin C ripened fruits pulp of *Carissa carandas* L was recorded.

Key words:

Carissa carandas L., Fruits pulp, Vitamin C, ascorbic acid, DCPIP -2,6 -Dichlorophenolindophenol

Introduction :

Unripened and ripened fruits of *Carissa carandas* L. were collected from Chandgad, Tahsil Chandgad, District Kolhapur, Maharashtra. Fruits were collected in the month of March, April and May 2025. This plant is from family Apocynaceae and it is originated in India Himalayas. Evergreen deciduous big shrub usually 4 m tall. stem contains white latex and the branches with sharp glabrous spines. Leaves are green coloured, elliptical oblong. Flowers small, with white colors and corymbose cymose inflorescences. The fruit is a berry, which is formed in clusters of 3-10 fruits. The fruit is globose to broad ovoid. Young fruits are pinkish white and become red to dark purple or black when ripe. It is with four seeds. Seeds are blackish brown flat, elliptical and light in weight. Photo 1 to 5

indicates information about the Unripened and ripened fruits of *Carissa carandas* L, Plant diagrammatic structures and flowers of the *Carissa carandas* L (Kapase, 2003, Singh *et.al.*,2001 Yadav *et.al.*,2002)

Both ripe and unripe fruits, are used in various culinary preparations. Unripe fruits are sour and astringent, making them suitable for pickles, chutneys, and sauces. Ripe fruits are sub-acidic to sweet and can be used to make jams, jellies, beverages, and other fruit products. Fruits are a good source of iron and vitamin C, and they possess ant scorbutic properties (Mishra,2024). The fruit's pectin content makes it useful for making jams, jellies, and other products. It also serves as a natural colorant in the food and pharmaceutical industries. Medicinal plants receive attention to research centres because of their pharmaceutical and industrial global demand for herbal medicinal chemical constituents. It is reported that more than 8000 species are used as medicine (Bhogankar *et.al.*,2011). Fruits are used to cure stomach disorders, blood purification and cooling agent in ayurvedic medicine . (Aitawade *et al.*, 2025).

Materials and Methods :

Unripened and ripened fruits of *Carissa carandas* L. were collected from Chandgad , Tahsil Chandgad, District Kolhapur, Maharashtra. Fruits were collected in the month of March, April and May 2025. Fresh pulp of the fruits was collected . The moisture percentage measures the water content in the substance calculated by considering the weight of water by the total wet minus dry weight divided by weight of water by the total wet then multiply by 100. moisture percentage from unripened and ripened fruits pulp of *Carissa carandas* L were recorded and P^H of unripened and ripened fruits of *Carissa carandas* L. fruits pulp extract was calculated with the help of P^H paper strip. Estimation of vitamins - C from unripened and ripened stage fruits was carried out in the R. B. Madkholkar Mahavidyalaya, Chandgad laboratory. For the estimation of Vitamin C standard ascorbic acid was prepared. 100 mg of pure ascorbic acid was dissolved in 100 ml of distilled water containing 1% acetic acid with concentration of 1mg/ml. Then 100 mg of DCPIP -2,6 – Dichlorophenolindophenol was dissolved in 100 ml of distilled water. 10 gm of fresh fruits pulp were crushed in the mortar and pestle. The extract was filtered through muslin cloth and final volume of juice was diluted to 100 ml of distilled water containing 1% acetic acid. For standardization of DCPIP solution, during the titration 10 ml of standard ascorbic acid was pipette into conical flask .The content in conical flask were titrated against DCPIP solution from the burette. Obtained end point was appearance of permanent pink colour. The titration procedure was repeated for thrice to get main burette reading. For estimation of vitamin C in unripened and entirely matured, ripened healthy . fruits pulp extract, 10 ml of sample was pipette into conical flask. The content in conical flask were titrated against DCPIP solution from the burette. Obtained end point was appearance of permanent pink colour. The titration procedure was repeated for thrice to get main burette reading. Vitamin C in samples (mg) were calculated using formula = $V_{\text{sample}} / V_{\text{standard}} \times \text{vitamin C in standard (mg)}$. (Sathe *et.al.* ,2019, Aitawade *et al.*, 2025).

Table 1- Height of plant Fresh weight Dry weight from ripened Carissa carandas L. fruits for estimation of Vitamin C

Sr. No.	Name of the plant	Height of plant (m)	Fresh weight (gm/single fruit)	Dry weight (gm/single fruit)	Moisture %	p ^H of fruit pulp
1.	<i>Carissa carandas</i> L- Unripened fruits	4	3.80	1.10	71.05	5
2..	<i>Carissa carandas</i> L- Ripened fruits	4	4.15	1.45	61	6

Table 2- Standard and sample titration readings from unripened and ripened Carissa carandas L. fruits pulp for estimation of Vitamin C

Sr. No.	Standard and sample titration	Intial Burette reading (ml)	Final Burette reading (ml)	Main Burette reading (ml)	Vitamin C in samples (mg) = V sample / V standard x vitamin C in standard – mg/10ml
1.	Standard ascorbic acid titration	0.00	24 25 25	24.6	-
2.	<i>Carissa carandas</i> L- Unripened fruits	0.00	2.9 2.8 2.7	2,8	11.38
3.	<i>Carissa carandas</i> L- Ripened fruits	0.00	1.9 1.8 2.0	1.9	7.723

Results and Discussions :

In this paper I have reported biochemical constituent vitamin-C, economic importance and active principles from the fruits pulp of the plant. I have reported 71.5 % moisture unripened fruits pulp , 61 % moisture ripened fruits pulp. pH of unripened fruits pulp juice was 5 and 6 pH was observed pulp juice ripened fruits, 67 % moisture ripened fruits pulp. Height of the plant was 4 m. of the Fresh weight and dry weight unripened fruit was 3.80 gm and 1.10 gm. Fresh weight and dry weight ripened fruit was 4.15 gm and 1.45 gm. Table-1). I have reported 11.38 mg/10 ml Vitamin C from unripened and 7.72 mg/10 ml Vitamin C ripened fruits pulp of *Carissa carandas* L. (Table-2) Rafique et.al (2023) suggest that at the ripened stage which is medicinally very useful and richest source of vitamins. .Chemical compounds like vitamin C are known to induce resistance against environmental and pathogenic stresses in plants and it is remedy to cure human diseases (Mahesh et.al 2007). This work about the unripened and ripened fruits powder of of *Carissa carandas* L. is related with results of Mager, 1989.



Photo 1. Unripened fruits of *Carissa carandas* L in the original Habit of plants.



Photo 2. Unripened fruits of *Carissa carandas* L



Photo 3. Ripened fruits of *Carissa carandas* L

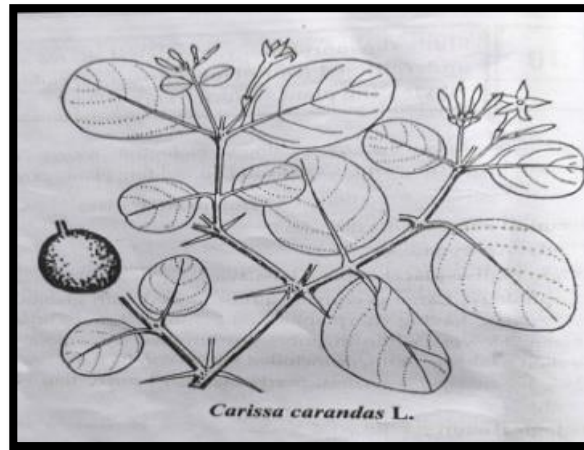


Photo 4. *Carissa carandas* L. – Plant diagrammatic structures



Photo 5. *Carissa carandas* L. – Plant flowers

References :

1. Bhogankar P.V. and Devarkar V.D. (2011) Pharmacogenostical and ethnobotanical investigation on endangered species *Iphigenia magnifica* , Plant Sci. Feed (7) 93-100.
2. Kapase H. (2003) Ayurvedic Medicinal Plants . Published by Son Publication ,Pune ,161-169.
3. Singh N. P. , Lakshminarasimhan P. ,Karthikeyan S. , Prasanna P. V. (2001) Flora of Maharashtra ,dicotyledon vol. 2, Flora of India series -2 , Botanical survey of India, Calcutta.
4. Sathe S.S., Kale P.B., Deshmukh S.A. Aitawade M.M. and Lavate R.A. (2019) A hand book of Practical Botany. Phadke Prakashan, Dudhali,Kolhapur.
5. Aitawade M.M. , Deshmukh S.A.(2025) Practical Botany, Published by-Phadke Prakashan, Atharva Apt.,Dudhali, Kolhapur.
6. Mager N.G. (1989). *Oils and fats*, published by secretary Maharashtra rajya sahitya ani Sanskriti Mandal ,Navin Prashasan Bhavan,Mumbai.Vol.No. -2,3, P. No. 172-173.
7. Rafique N., Mamoon T., Ashraf N., Hussain S.Ahmed F. , Shah T.Salamatullah A., Mekonnen A. , Bourhia M. (2023) Exploring the nutritional and sensory potential of karonda fruit: physicochemical properties ,jam production and quality evaluation, Food sci. Nutr. Sept.8,11 (11) 6931-6944.

8. Mishra B. (2024) Karonda (*Carissa carandas* L.):A miracle fruit with multifaceted potential, ScienceDirect.com
- 9.Yadav S. R. Sardesai M. M. (2002) Flora of Kolhapur District , published by Shivaji University Kolhapur.

