



A REVIEW ON PHYTO-CHEMICAL CONTENTS IN *OPUNTIA FICUS-INDICA*

Sunita Verma*

India

Author for Correspondence: Sunita Verma
India

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ABSTRACT

Opuntia ficus-indica also called prickly pear cacti, belongs to the Cactaceae family. It grows in arid and semi arid conditions. *O. ficus indica* have nutritionally rich edible fruits. It also used in traditional folk medicines due to its role in treating a number of diseases. In present paper detailed taxonomic description, illustration, photographs and its phytochemical contents are discussed.

KEY WORDS: *Opuntia ficus-indica*, Cactaceae family.

INTRODUCTION

Opuntia ficus-indica belongs to the Cactaceae family, also called prickly pear cacti. This is adapted to arid zones, characterized by drought conditions, erratic rainfall and poor soils subjected to erosion.^[2] This plant survives the drought due to its succulent leaves. It is attractive as food due to its efficiency in converting dry matter and thus provide digestible energy. The succulent pads of *Opuntia* species serve as a source of water for livestock in dry regions around the world and provide an important feed source of fodder.^[4]

The genus *Opuntia* (Cactaceae) has a specialized photosynthetic mechanism known as Crassulacean Acid Metabolism (CAM), whereby these plants open their stomates and take up CO₂ at night. This attribute leads to reduced water loss.^[10] Regarding to its high water-use efficiency (even in areas with low annual rainfall values, 120-150 mm), and its high drought-tolerance.^[9] It produces sweet, nutritionally rich edible fruits, its tender cladodes are used as fresh green vegetable and salad. The fruit, as well as cactus stem are used to prepare value-added products, such as jam, squash, wine, pickle, body lotions, shampoo, creams, etc. It also has several medicinal and industrial uses. Its seeds can be used as flavouring agents.^[12] It has been used in traditional folk medicine because of its role in treating a number of diseases and conditions, including antiinflammatory effects^[11], hypoglycemic effects^[3], inhibition of stomach ulceration^[5], neuroprotective effects.^[1]

CLASSIFICATION

Kingdom : Plantae
Order : Caryophyllales
Family : Cactaceae
Genus : *Opuntia*
Species : *O. ficus indica*



Fig 1: Whole plant of *Opuntia ficus-indica*

BOTANICAL CHARACTERS

Opuntia ficus-indica is a succulent shrub ranging 1 -3 m. The branches (cladodes) are flattened green in colour. The leaves of *O. ficus-indica* are minute and are shed early. The flowers of *O. ficus-indica* are conspicuous, bright yellow or orange, red in colour. It bears succulent edible berries which are reddish when ripe, about 6 cm long and covered with clusters of minute spines.

CHEMICAL CONSTITUTES

The main constituent of *Opuntia ficus-indica* cladodes is water (80- 95%), followed by small amounts of carbohydrates (3-7%), fiber (1-2%), and protein (0.5-1%); other compounds are only partly known and have not been quantitatively determined.^[14] The physiological role of the plant mucilage is to regulate the cellular water content during prolonged drought and to regulate the calcium fluxes of the plant.^[8] *Opuntia ficus-indica* cladodes also represent a source of phytochemicals, such as phenolics acids and flavonoids.^[6] cactus pear fruit

containing betalain pigments is a good potential for the use as a natural food colorant.^[13] Moreover, the fruits of *Opuntia ficus indica* are a source of ascorbic acid; in addition to ascorbic acid other organic acids were identified as maleic, malonic, succinic, tartaric and oxalic. Also contain appreciable amounts of vitamins B1, B6 vitamin E and vitamin A.^[7] *Opuntia ficus-indica* fruit contains mineral also like calcium, magnesium, sodium and potassium, phosphorus, iron.^[13]

CONCLUSION

Opuntia ficus-indica (prickly pear cacti) is a valuable medicinal plant. It has been used in traditional folk medicine because of its role in treating a number of diseases and conditions, including hypertension, rheumatic pain, hypercholesterolemic, gastric mucosa, diabetes, diseases. More studies on *Opuntia ficus-indica* could help better understand to identify its therapeutic potential in other diseases.

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