

# Cactus Pear Domestication and Breeding

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## I. INTRODUCTION

Cactus pear, formerly prickly pear, (*Opuntia* sp. Mill.) is a dicotyledonous plant of the cactus family (Cactaceae) native to Central Mexico and the Caribbean region. It is extensively used as food for humans and animals. Although wild populations are still exploited, the plant has been and is being domesticated as an important fruit crop in many areas of the world. There are more than 300 species of the genus *Opuntia* (Scheinvar 1995) distributed across the American continent but only three species, *Opuntia albicarpa* sp. Novo, *O. ficus-indica* (L.) Miller, and *O. robusta* Wendl var. *larreyi* (Weber), are important for horticultural purposes.

Cactus pear is a perennial, characterized by a jointed flattened stem, each piece termed a cladode. The tiny succulent leaves, cylindrical or conical, are ephemeral and present only in young stems. Areoles (the equivalent of a complex bud with glochids [bristles] and spines) are arranged in clusters and distributed in a helicoidal fashion on the cladodes. Fruits also contain areoles and have thick rinds and comparatively large seeds covered by hard, bony, light-colored arils (Weniger 1984). The morphology of the cactus pear plant is described in Fig. 5.1. In Mexico all the platyopuntias (cacti with flattened stems) are known by the popular name of *nopales*; the tender pads are called *nopalitos* and the fruits are called *tunas*.

Another edible cactus is *Opuntia cochellinifera* (Scheinvar 1995) syn. *Nopalea cochellinifera* Britton & Rose. The young cladodes of this plant are used as a vegetable in Northern Mexico because they are almost devoid of glochids and spines. The mature cladodes are elongated with a thick cuticle. The floral structure is unique, possessing a pink corolla that does not open at anthesis, and an exerted stigma and stamens.

Several cacti species besides cactus pear bear edible fruits, and they are being slowly incorporated into commercial cultivation. Pitaya (*Stenocereus* sp.) is a columnar cactus that thrives in dry tropical areas