

## **An Overview of Products from Cactus Pears**

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My first success resulted from a cactus Margarita made from red cactus pears. This process involved soaking the pulp of the cactus for several days in tequila, blending the soaked pulp, then filtering the mixture through a coffee filter. The lovely magenta "cactus ritas" that resulted were sold in the high-tourist area of the San Antonio Riverwalk for \$7 each. During the peak season, I was using 500 kg of red tunas every two weeks. Due to the high volume, I received a call from the Texas Department of Agriculture to inquire about what I was doing with the cactus pears because I was the largest buyer of cactus pears in Texas.

Shortly thereafter, I came in contact with David D'Arrigo through our mutual interest in red cactus pears and the possibility of developing a stable red puree from the cactus.

Due to increasing consumer concern for organic health food, frozen puree from cactus pears is most attractive because this product does not need preservatives to maintain color, additives to control acidity, or stabilizers for consistency. Because the frozen cactus puree is very easy to use, it has tremendous potential in products as diverse as sorbets and popsicles.

An interesting by-product of the production of the frozen puree is the seeds of cactus pears. While the oil from the cactus seeds was of excellent nutritional quality, the yield of oil was very low. David D'Arrigo confirmed that his attempts to obtain oil from cactus seeds were very disappointing from a commercial perspective due to the low yields. Despite the low yields, it is important to note that avocado oil sells for \$8 per 5-ounce bottle.

While cactus-seed oil cannot be extracted economically by a mechanical press, historically, the oil has been extracted with hot water. As Carmen Saenz has shown, ethanol is a better extractor of the seed oil than water.

Even if it is not possible to extract enough oil from the seeds, the seeds still hold potential as a food source. For example, when cactus-pear seeds are ground finely, a chocolaty cumin flavor results. These ground seeds can be used very effectively to make a mole for Mexican food preparations. Traditionally, a mole is a chocolate-chile mixture used on a variety of meat dishes. These ground seeds could also be used by candle makers to produce scented candles. Much of my seeds have been obtained from David D'Arrigo as a by-product of preparing the cactus puree.

The skins (peel or cascara) of the cactus pears also have potential food applications. The peeled skins, after being soaked in warm water and strained to separate the spines, can produce a sugar concentrate.

While nopalitos have been used traditionally only in Mexico and, to a limited extent, in southwestern United States, they have considerable potential for expanded sales with new types of products. As new consumers have considerable hesitation to eat nopalitos, it is useful to prepare them in a product that first-time consumers will be more accustomed to. Cactus fries,

made from nopalitos are one example of such a product. The cactus pickles developed so excellently by Wagon Wheel Farms is another such example. There are millions of pickles placed on hamburgers every day. However, baby cactus pickles would be more appealing than cactus strips.

Candies could also be made from cactus pears, skins, and nopalitos as a product similar to candied citron. A boiled-down syrup could be made into a candy. The less handling of the product and the less heat used in its preparation, the more healthy is the product.

In addition to the more obvious uses of cactus for food, there is also the possibility of developing uses for the mucilage of cactus in food products. Mucilage is similar to the products that create good mouth feel and increase the viscosity (thickness) of food products. Other examples of food thickeners are guar gum, xanthan gum, and locust-bean gum.

This mucilage could be used to make a stabilized meringue for icing on a cake, to thicken jellies and jams, and even in cocktail sauce for shrimp.

In summary, cactus has an exciting and diverse future in which seeds can be used for mole, the nopalitos used fresh, fried, or pickled; the fruits made into gorgeous magenta cocktails or frozen purees; and the mucilage used as an industrial food product.