

PRICKLY PEAR FINAL ARTICLE

PRICKLY PEAR SEASON

Its Prickly Pear season here in Arizona. From late July through the month of August, the delicious fruit of these very well named cacti ripen and are ready to harvest. I am sure that if you are new to the desert you can hardly imagine eating any part of any cactus, never mind those that are so thoroughly covered in thorns and invisible needle like spines. But those that live here can assure you that it is well worth learning the secrets of how to harvest, prepare and indulge in the sweet fruit of this plant.



HISTORY



There must be some reason that this plant is so important that Mexico has it on their flag. Their coat of arms shows an eagle standing on a prickly pear while devouring a rattlesnake. This image goes all the way back to the founding of the great Aztec capital Tenochtitlan which means “place

where cactus pear grows on stone”. Fossilized seeds and skins were found in Mexico that are over 7,000 years old. The Aztecs believed that the bright red fruit of the Prickly Pear was a symbol of the human heart and everything it represented. That is pretty significant and hints at some of the properties of this delicious fruit and the plant itself that we will touch on later.



WHERE DOES PRICKLY PEAR GROW?

So what happened to this great Aztec capital? Well, we now know it as Mexico City. So does that mean that Prickly Pear only grows in Mexico? Absolutely not. Prickly pear is a very old member of a group of cactus called Opuntia. Of all the cacti in the US, it has the largest range. Although native to the Americas (North and South) human travel has introduced it throughout the world for good or ill. In this hemisphere, they are abundant throughout Mexico and the Southwestern US. The Big three states are Texas, Arizona and New Mexico. However, you will also find it abundant in such diverse locations as the Rocky Mountains, the Great Plains, the plains along the Mississippi, Ohio and Illinois Rivers as well as the the coastal regions of the East Coast all the way from Florida to Connecticut. Essentially they are found from Canada to the Caribbean Islands. In the Galápagos Islands, 6 different species feed their famous giant tortoises. In Australia, Ethiopia and South Africa, Hawaii and others they are considered an invasive unwelcome species.

HOW MANY VARIETIES OF PRICKLY PEAR ARE THERE?

There are about 19 species in the Sonoran Desert alone. Native Americans recognize many more. Cross pollination causes many hybrids making it hard to attribute every plant to a specific species.

IS IT KNOWN BY ANY OTHER NAME?

The many species of prickly pear belong to the *Optunia* genus. Some of the names used are:

- Nopal
- Cactus apple
- Indian fig
- Mission Cactus,
- Barbary fig
- Cactus Pear
- Tuna (the Spanish word for pear.)

IS PRICKLY PEAR A USEFUL PLANT?

Different parts of the plant are used as food and medicine. The fruit can be eaten raw but the majority is made into juice for syrup, jelly, wine, candy or a wide variety of desserts or baked goods. It is high in protein and vitamins.

Medically it has been used in traditional medicine for centuries to treat a wide variety of ailments ranging from poultices for cuts, bruises, sunburn and even bee stings to treating diabetes and heart disease. Some of the milder conditions it has been shown to help with are constipation and cold congestion.

More significantly it has been used to treat:

- Type 2 Diabetes (See "Safety below") Scientific studies have been done on specific parts of the prickly pear cactus given in equal doses 3 times a day to reduce blood sugar.
- High cholesterol,
- Obesity
- Hangovers - Extracts of prickly pear can be taken 5 hours prior to drinking alcohol to prevent hangovers.
- It is also anti-viral and anti-inflammatory

Prickly pear, raw

| Nutritional value per 100 g (3.5 oz) | | |
|--------------------------------------|------------------|-------------|
| Energy | 172 kJ (41 kcal) | |
| Carbohydrates | 9.6 g | |
| Dietary fiber | 3.6 g | |
| Fat | 0.5 g | |
| Protein | 0.7 g | |
| Vitamins | Quantity | %DV† |
| Vitamin A equiv. | 25 µg | 3% |
| Riboflavin (B ₂) | 0.1 mg | 8% |
| Niacin (B ₃) | 0.5 mg | 3% |
| Vitamin B ₆ | 0.1 mg | 8% |
| Folate (B ₉) | 6 µg | 2% |
| Vitamin C | 14.0 mg | 17% |
| Vitamin E | 0 mg | 0% |
| Minerals | Quantity | %DV† |
| Calcium | 56 mg | 6% |
| Iron | 0.3 mg | 2% |
| Magnesium | 85 mg | 24% |
| Phosphorus | 24 mg | 3% |
| Potassium | 220 mg | 5% |
| Zinc | 0.1 mg | 1% |
| Other constituents | Quantity | |
| Water | 88 g | |

ARE ALL VARIETIES OF PRICKLY PEAR EDIBLE/ USEFUL?

Most sources say that all varieties of prickly pear fruit are edible but there is quite a range in taste from quite bland to delicious. Other varieties are chosen as ornamentals for their particular shape, color and flowers. These range in size from small ground covers to the size of a tree. Many varieties have been used in agriculture as fencing.

WHAT PARTS OF THE PRICKLY PEAR ARE USED FOR FOOD?

The young, tender wide flat pads (*Nopales* in Spanish) are a staple in many Mexican dishes. The fruits (*tunas* Spanish for pears) are very sweet and can be eaten raw (after removing the many visible and invisible spines of course). You can purchase these, as well as the cleaned pads from a store where the spines (glochids) have already been removed.

PRICKLY PEAR IS A SUPERFOOD

Now that we have established that it is not only edible and useful, let's get to why YOU would want to try it. Besides being delicious, it is considered to be a superfood for its range important properties. Some say it is one of the top 3 cacti in its value to humans. For example, it is anti-carcinogenic, anti-oxidant, anti-viral and anti-inflammatory. The high vitamin and mineral content of the fruit is said to "alkalize" the blood (read reduce acidity), help with kidney function, diabetes, reduce fat in the blood and strengthen the heart and that is just for starters.

In Mexico the fruit was used with the pulp of the cactus pad and juice in traditional folk medicine for digestive issues, urinary tract infections and skin wounds. Each variety has different properties. As you can see from these pictures, not all of the fruits (or *tunas* the Spanish word for pear) are red.



They can be red, wine-red (considered the sweetest and most nutritious), green and yellow-orange. The green variety is used for both food and medicine to heal bloating, inflammation, joint and muscle pain. The yellow-orange variety are found most commonly in Italy, especially Sicily where they are used as fencing. The flavor is said to be reminiscent of citrus, banana, melon or fig. However, their flavor is delicate and lost in cooking so it is best to eat them fresh.

It is the red fruits that are most commonly used here in Arizona. The flavor is said to remind people of a mixture of watermelon and bubblegum and the color of the juice is a gorgeous neon pinkish/magenta.

BUT IS IT SAFE?

Prickly pear is considered “likely safe” when eaten. However, as in all things what does not bother some people can bother others. There have been incidents of minor side effects such as diarrhea, nausea, bloating and headache. The countless little seeds inside the fruit are hard to digest and can be the cause of discomfort in some people. But other components of the plant can be responsible as well.

Special consideration should be taken by individuals who are pregnant, have diabetes or are planning surgery. Those with diabetes should monitor their blood sugar closely when ingesting the prickly pear especially the pads or *nopales*. Medications that they take to lower their blood sugar could magnify the effect causing the blood sugar to drop too low. The same situation can occur before and after surgery. It is suggested that one should stop consuming prickly pear at least 2 weeks prior to surgery. (https://www.rxlist.com/prickly_pear_cactus/supplements.htm#HowDoesItWork)

WHY IS PRICKLY PEAR EFFECTIVE?

It is believed that the fiber and pectin content of the prickly pear is the source of some of its positive medical effects. It is believed to lower blood glucose by interfering with the absorption of sugar by the stomach and intestines. It is also felt that this is the reason why it reduces cholesterol and triglyceride levels - most notably the LDL or “bad” cholesterol. Significantly, HDL or “good” cholesterol levels are not effected. It is also believed that these parts of the plant are somehow responsible for killing viruses in the body. (https://www.rxlist.com/prickly_pear_cactus/supplements.htm)

NOW I AM INTRIGUED. CAN I GATHER THEM ANYWHERE?

- Obviously if they are on private property, you need the owners permission.
- In the Cave Creek, Carefree, Scottsdale area we have been told that the plant is protected but not the fruit. You could not dig up and remove the plant but the same does not apply to the fruit.
- It is illegal to pick them in some areas, but not others, for example Saguaro National Park in Tucson but not in Tucson Mountain Park. So you need to be informed.
- In some areas you need a permit.
- Sometimes you see the best ones along the side of the road. Think about what they may have been exposed to and then decide for yourself whether that is a good idea.

HOW DO YOU KNOW WHEN THE FRUIT IS RIPE?

Fresh ripe fruit can be easily removed from the plant by twisting it. The color of the fruit will change from green to a solid red or yellow color depending on the variety. This is the

most important indicator, and often only indicator, as to the fruit's ripeness. However, another test for ripeness requires you to - very carefully - wearing a thick leather glove - squeeze the prickly pears gently. If they feel firm, they are most likely fully ripe. Of course if the fruit is the green variety, it will not turn color but the inside will. The flesh will be yellow and moist with many hard, edible brown-black seeds. You will have to cut into it to test for ripeness. The seeds are too tough to chew fully but they can be safely swallowed whole or discarded completely. A ripe green cactus pear will be very juicy and smell and taste like a combination of pear and watermelon.

WHAT WILL I NEED TO GATHER THE FRUIT?

- Long leather or very thick impenetrable sturdy gloves.
- Depending on how much you want to gather, a small bucket for gathering and a larger bucket to hold all of them.
- A broom made of several branches of the plant BROOM with the stems tied together (for knocking many of the glochids off the pears before they are picked).
- Tweezers and or duct tape (to remove the inevitable spines.)
- Desert gathering clothes - sturdy shoes, socks, long pants, long sleeves, significant hat for protection from the sun. You might wish to choose dispensable clothing in case they get full of spines (from other desert plants, jumping cholla , etc.) that you brush up against while gathering the fruit. If the clothes get full of spines you cannot wash them out.



HOW DO YOU GATHER THE PRICKLY PEAR FRUIT?

- Don't make the mistake of thinking that wearing leather gloves will protect you from the spines. The spines will go right through them and then you will be picking them out of your gloves AND your hands. Wear them BUT use a tool.
- Long handled tongs are a favorite choice for grabbing and twisting the pears off the plant.
- Some people use a sturdy sharp knife placed in the center of the fruit to twist them off.
- Before removing the fruit from the plant, "dust" them fruit forcefully with your "broom" to knock off as many glochids as you can.
- Put them one by one in a small bucket for easy gathering.
- Transfer your collection to a larger bucket when the smaller one gets full.

A RULE OF THUMB?

When harvesting, it is common courtesy to take into account the many desert wildlife that live here. A rule of thumb is to take no more than 10% of each plant leaving the rest. Just some of the seemingly endless animals besides us that eat prickly pear are:

- Javelina
 - Coyote
 - Pack Rats
 - Jackrabbits
 - Desert Tortoise
 - Iguana
 - Mule Deer
 - Desert Squirrel
 - Camel
 - Birds
 - Beetles
 - And many more
-
- Livestock: The Southwest cattle industry uses them for forage for:
 - Cattle
 - Horses
 - Sheep
 - Pigs
 - Ostriches

HOW DO ANIMALS EAT PRICKLY PEAR WHEN IT IS FULL OF SPINES?

Usually only the young pads are consumed but under harsh conditions the full grown are as well. While walking in the desert you can see evidence of large bites taken out of the pads. Depending on the animal they may eat the base of the cactus where there are no spines or they are small enough to eat around them. Others just endure the discomfort out of necessity. Cattle ranchers burn the spines off. A link to a video of a camel in Tucson, Arizona eating prickly pear seemingly without discomfort follows.



According to Elaina Zachos of the National Geographic:

*“Camels have a hard palate at the tops of their mouths, says Alex Warnock, the Arizonian who owns the camels in the video. Their teeth grind food against this palate.
[...]*

The camel’s rotating chew distributes pressure from the cactus and the papillae slide the needles vertically down the throat. This way, the sharp ends don’t poke the camel as it ingests them.”

According to Luis Padilla, the director of animal health at the St. Louis Zoo

“Although camels can physically eat cactus, munching on the spikey plants can hurt them. Still, they often choose to tolerate the discomfort and potential pain in order to enjoy the fleshy green parts.”

HOW DO YOU REMOVE THE GLOCHIDS? (tiny invisible hairlike spines that cover the fruit.)

- There are many ways, some easier than others, some more successful than others. Indigenous people used what was available to them from swishing them together with bundled grasses to rolling them on the ground to knock the glochids off.
- Some people use a blow torch.
- Some toast them over a flame turning them frequently so the fruit itself doesn’t burn.
- Some put them in a colander and swish them against each other while rinsing it with water.
- Others still, rinse them thoroughly, cut them up and put them in a blender without removing the glochids at all, and filter the entire lot through a pillowcase, piece of sheeting or several layers of cheesecloth, throwing the cloth away afterwards.

HOW LONG DO THE FRUITS LAST AFTER THEY ARE HARVESTED?

The fruits, assuming they are harvested when ripe, only last about a week if kept fresh. However, they freeze well and that is often a prior step to processing them.

WHAT GIVES THE FRUIT ITS BEAUTIFUL COLOR?

Cold temperature and drought intensify the purple color of the red varieties.

DOES PRICKLY PEAR JUICE STAIN?

Prickly pear juice has such a powerful neon pinkish red color that it is hard to believe that it just washes off hands and clothing. It is the glochids that cover the fruit that are impossible to get out of cloth and bodies. The fruit contains high amounts of antioxidant pigments (betacyanins), which also occur in such infamous stain producers such as beets and cherries but it does not have the permanence of the latter.

However, a group who was interested in seeing if it could be used as a natural dye had success by setting the color by the addition of certain chemicals during processing. The following link leads to an interesting article on the subject especially for those who are interested in using natural dyes. <https://www.sciencedirect.com/science/article/pii/S1319610310001171>

HOW EASY IT TO GROW?

They are easily propagated from stem segments or cuttings but you can grow them from seeds as well. Propagation from the plant it self is a much faster proposition - <https://www.motherearthnews.com/organic-gardening/prickly-pear-cactus-zmaz76soztak> or <https://www.desertsun.com/story/life/home-garden/maureen-gilmer/2020/04/18/propagating-pretty-prickly-pears/5136943002/>

TO LEARN ABOUT PROCESSING AND HARVESTING PRICKLY PEAR PLEASE GO TO THE DESERT AWARENESS COMMITTEE FACEBOOK PAGE AND THE THEIR WEBSITE.

<https://www.facebook.com/desertawareness>

<https://www.azfcf.org/about-desert-awareness>

YOU CAN SCROLL DOWN TO MULTIPLE PICTURES AND VIDEOS OF OUR MOST RECENT HARVEST. YOU CAN ALSO PURCHASE A FABULOUS RECIPE BOOK FOR ALL THINGS PRICKLY PEAR CREATED BY OUR MEMBERS. THERE YOU WILL FIND A FULL SCHEDULE OF EVENTS AS WELL AS INFORMATION ON OUR



PRICKLY PEAR HARVEST FESTIVAL
CTOBER 24TH AT THE HOLLAND CENTER
34250 N 60th St, Bldg B Scottsdale, AZ 85266

REFERENCES

<http://m.hktdc.com/suppliers-products/Prickly-Pear-Cactus-Pear-Fruit/en/1X0AH74B/3394664/>

<https://theculturetrip.com/north-america/mexico/articles/the-story-behind-the-mexican-flag/>
REFERENCES

<https://en.wikipedia.org/wiki/Opuntia>

https://tucson.com/lifestyles/food-and-cooking/get-ready-for-prickly-pear-season/article_f45fbae3-db2a-5ccc-bf44-6502e59a1854.html

https://specialtyproduce.com/produce/Red_Cactus_Pears_2003.php

https://specialtyproduce.com/produce/Green_Cactus_Pears_326.php

https://specialtyproduce.com/produce/Yellow_Cactus_Pears_13788.php

<https://foodprint.org/real-food/prickly-pears-and-nopales/>

<https://www.desertsun.com/story/life/home-garden/maureen-gilmer/2018/08/26/fruit-heart-use-cactus-fruit-jelly/1024457002/>

<http://m.hktdc.com/suppliers-products/Prickly-Pear-Cactus-Pear-Fruit/en/1X0AH74B/3394664/>

https://www.ehow.com/info_8352872_eats-prickly-pear.html

<https://www.encyclopedia.com/places/africa/zimbabwe-political-geography/prickly-pears>