

**Pitaya and Health**

**Medicinal Properties**

**& Cultivation**

by J. Bilbao



The Pitaya is a plant native to Central America, it is a plant with many branches and it grows up to 2 meters high. The pitaya plant has two types of roots, primary roots that are thinner and more superficial and are the ones with which it absorbs nutrients, and secondary roots, these roots develop around the area of the pitaya plant and act as a support for the plant.

The pitahaya plant likes warm climates with humidity in the environment, but it can also grow in drier climates with less humidity in the environment. The temperatures that are best for its growth are between 18G° and 25G° and it likes semi-shaded areas. The stems of the Pitaya plant are branched green, the flowers and branches grow from the top of the plant, the stem participates in photosynthesis and is the water regulator of the Pitaya.



The Pitaya also adapts to dry and nutrient-poor soils, but it develops better in sandy, moist and well-drained soils, the pitaya does not require much water, support irrigations should be given during the development of the plant and in the flowering period, if irrigation is done in periods of drought, it must be very contained since abundant irrigation in this period influences the decrease in flowering.

Two main species are distinguished: *H. Triangularis* (yellow pitaya) and *H. Ocamposi* (red pitaya). The one that provides red fruits is much more attractive but has the drawback that it is much more fragile and delicate, poorly supporting transport and subsequent marketing. The yellow one is less perishable and offers better commercial possibilities due to its resistant qualities and, above all, its flavor, which is much better than the red varieties.

Other species are; *Hylocereus Costaricensis* which has red flesh and pink skin; *Hylocereus monacanthus* with red flesh and pink skin; and the already mentioned variety *Hylocereus undatus* with white pulp and pink skin.



## Nutritional and medicinal properties of Pitaya

The Pitaya has a significant number of antioxidants such as mucilage, ascorbic acid, phenols and others. It is a fruit rich in Vitamin C, B vitamins (B1, B2 and B3), it is also rich in minerals such as calcium, phosphorus, iron, with a high water content, it provides vegetable protein and soluble fiber. The seeds are edible and contain significant amounts of fatty acids such as linoleic acid, oleic acid, palmitic acid and stearic acid. The Pitaya has antitumor, anti-inflammatory and antioxidant action.



## Some benefits and medicinal uses of pitaya.

It delays cell aging, strengthens the immune system, helps prevent arteriosclerosis, helps regulate intestinal transit, helps reduce the risk of stroke and heart attack. Pitaya seeds have a laxative effect, help



prevent kidney stones, inhibit the development of tumor cells, and help regulate blood sugar. The consumption of Pitaya helps to stimulate the production of collagen, helps to improve the absorption of iron, in children, it is good for the formation of bones and teeth, it helps to reduce the levels of uric acid, it goes very well as a fruit for consumption daily in slimming diets due to its high water content and low carbohydrate content.



### **How to consume Pitaya**

The pitaya is usually consumed as a fruit, it is a delicious fruit that contains a soft, sweet and soft pulp, there are yellow and crimson varieties, the red-skinned varieties usually contain less sugar, the inner flesh of the fruit can be consumed as that of any other fruit, it can also be used in smoothies, to make ice cream and many other culinary recipes.



## How to Grow Pitaya

The Pitaya can be cultivated in two ways, by stake transplant or by seed, the most used is the stake transplant but for this you must first root the plants, for the sowing of seeds we use poteras or plastic trays with a cavity for root when plants germinate.



### Planting by stake

If we have rooted plants, the first step will be the preparation of the land, we must do this at least one month before planting as follows:

Firstly, we will have to fertilize the land with organic garbage, spread a layer of fertilizer of approximately 5 cm on the surface that we are going to cultivate, if artisanal fertilizer is not available, the land can be fertilized with earthworm humus purchased in stores dedicated to the sale of these products, if the land is very compact or hard, it is convenient to add sand, it can be beach sand, well washed with fresh water to remove the degree of salinity, the cultivation of Pitaya needs soils that drain water well by What is also important is that the land has a slight



unevenness, the pH of the land to be cultivated must be between 5.5 and 6.5.

Secondly, we plow the land so that it aerates and mixes the fertilizer with the soil, the depth of the plow should be between 25 and 30 cm, and it is recommended that the soil remain spongy, after the plow we will let the soil rest for one month until planting.

After the month of rest after the fertilization and plowing in the land where we will plant the Pitayas, we will proceed to make the plantation. Firstly, draw the planting lines so that the plants are aligned and receive the sufficient clarity of light that they need both for the development and for the ripening of the fruits, we can do this with ropes that reach from end to end of the land for plant, some lines along the field and other lines across the field and we will plant a plant at each line crossing, the distance between lines along and across the field should be approximately 3 meters, so the distance between plants will be the same.

Pitaya plants need a support or tutor, both in the development of the plant and in later periods, for this we will prepare some very strong wooden stakes that will be nailed to the ground next to each plant, the stakes must have an approximate diameter of 7/10 cm and a length of approximately 2.5 meters, of which approximately 1 meter will be nailed to the ground, as the plant grows we will tie it to the stake with esparto

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ropes so that the plant is attached to the stake, when the plant develops it will be necessary to change the ropes that tie the pitaya to the stake, since this plant not only develops in height, it also develops in thickness and it is convenient to adapt the fastening with the ropes at different times of development so that the plant does not suffer strangulation against the stake.

The pitaya does not require periodic fertilization during its development, nor in the period of growth of its fruits, so the fertilization that was made at the beginning of the plantation is sufficient, but if it will be necessary to refertilize and plow the land from the aisles that remain in the rows of plants and bring the spongy and fertilized land closer to each row of plants in each new production period, that is, each calendar year, since the life of the crop is estimated at approximately 15 years. It does not need a lot of water either, the pitaya is watered in the same way as if we were watering a cactus, if the area of the plantation is very dry, we can irrigate abundantly every 15 days approximately, the exact days of interval between irrigations also depend on other factors such as the environmental humidity of the place or the rains, in these cases the time interval between irrigations is greater, with irrigation it is important to take into account that excessive irrigation can be a cause of death for the plant, so it must be calculated very well when to do each irrigation.



## Sowing of Pitaya Seeds

Sowing pitaya seeds is also a good option. Once the seeds have been selected for planting, we will first proceed to prepare the plastic trays with a cavity for rooting, we will fill all the cavities of the tray with special compost (A normal compost made in an artisanal way is used, to which you will mix 25% sand previously washed beach). Once we have filled the trays, we will proceed to sow the seeds, we will introduce 2 seeds in each cavity of the tray to be sure that at least one germinates and later we will cover the seeds with the compost. The second step is to place the sown trays inside a greenhouse so that the seed does not have germination problems. Once the trays are placed in the place where they are going to be during the seedbed period, we will proceed to do a first irrigation of them with a sprinkler with fine holes so that it does not remove the seeds sown in the peat, later it will be necessary to water the trays with the same method, each time the compost in the trays looks dry, until the plants grow to the transplant size.

In 7/10 days the seeds will have germinated and we will begin to see



the beginning of the growth of the plants, in approximately 75 days, the pitaya plants will have a size and will have rooted well to be transplanted to the ground and we will follow the same planting process as the one explained in the plantation by stake, in the period in which the plants are in the seedbed it will be necessary to carry out a periodic fertilization until the moment of the transplant (Fertilize with organic fertilizer every two weeks, the fertilizer will be incorporated into the irrigation water).

The pitaya plant takes approximately one year to fully develop and bear fruit, the average harvest is between 4 and 6 in each annual cycle in sub-tropical areas where the plant is grown outdoors. The life of each crop is estimated at around 10/15 years.

In non-sub-tropical areas where temperatures are not excessively cold in autumn, winter and part of spring, pitaya can be grown in greenhouses, taking advantage of natural energy resources (Sun, Wind and others) so that the energy costs of adaptation of the greenhouses to the climatic needs of a quality crop are acceptable and a profitable and competitive production is achieved.



## **Planting times of the Pitaya**

The pitaya plantation by stake is carried out at the beginning of winter, if it is carried out during the dry season, abundant irrigation must be given both before planting and after and incorporate a layer of superficial organic matter to prevent high temperatures and reduce moisture loss.

If the plantation is carried out by means of sowing seeds, it is done in mid-autumn and then transplant the rooted plants in the same way at the beginning of winter.



## **Formation pruning**

Formative pruning is carried out from the beginning of the plantation, it allows to eliminate the shoots to leave one or two selected pods so that they reach the end of the support. Upon reaching the top, the plant is tipped to allow lateral sheaths to develop from the tip.



During growth and later, cleaning pruning is also carried out to eliminate the pods, which are poorly located and harm the proper development of pitaya plants and are usually unproductive. The cuts of the stems that are pruned must always be made between the nodes. Discarded material is burned or buried outside the plantation.

### **Yield per Hectare**

If the Pitaya Plantation is carried out within the established production standards for less land exhaustion (Plants at a distance of 3 meters from each other), we will have a total of

1,100 bushes per hectare.

Normally, the first harvest can be obtained 18 months after the transplant, in this initial period the pitaya plants bear a number of fruits, approximately 10/15 fruits per year.

The fruits of the pitaya weigh between 150 to 600 gr. Depending on the variety, we can say that the average weight of the fruits to calculate the yield of this crop is approximately 300 grams per fruit.

Pitaya production increases slightly until the sixth year, but it can be said that each pitaya plant gives about 4.5 kilos per plant per year, this makes a total of 4,950 kilos per hectare. This would be the amount of production or the yield that a pitaya plantation would give us for each hectare of cultivation.

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