

Protected food, drink or agricultural product name

# Single document for PITAHAYA AMAZONICA DE PALORA

**GB number: F0093**

A protected designation of origin (PDO)

## 1. Product name(s)

Pitahaya Amazónica de Palora

## 2. Country

Ecuador

## 3. Description of the agricultural product or foodstuff

### 3.1. Type of product [as in Annex XI implementing regulation 668/2014]

Class 1.6. Fruit, vegetables and cereals fresh or processed

### 3.2. Description of the product

Pitahaya is a fleshy perennial plant with decumbent and angular leaves, armed with thorns, green color and white flowers, funnel-shaped, 32 to 28 cm long. The fruit is ovoid tuberous, thorny yellow.

Pitahaya produced in Palora is large in size, has a firm rind, a sweet flavour with a taste of white fruits (pear, naranjilla), higher acidity, with a very pleasant aroma, the pulp is consistent, and its flavor is prolonged in the mouth, unlike the other types of pitahaya that are smaller, elastic, light flavor, not very sweet, which disappears

quickly in the mouth. Its flesh is juicy and fleshy, composed of small shiny seeds that are evenly distributed in large quantities throughout the fruit and have a diameter of about 3 mm, a dark black colour and an obovate shape.

### **Physical characteristics**

**Family:** pitahaya yellow cereus triangularis.

**Color:** from bright green (degree of maturity) to yellow-orange.

**Length:** between 10 to 15 cm.

**Diameter:** from 7 to 8 cm.

**Shape:** oval, round, elongated, free of formations.

**Appearance:** free of stains, scars and bruises caused by slugs, bugs, birds, mites, fungi, ants, agrochemical residues, punctures, cuts from pruning shears, evidence of bruises, free of thorns with their entire nipples.

**Weight:** greater than or equal to 200 grams depending on size of fruit.

### **Organoleptic characteristics**

**Texture:** On the surface of the peel there are protruding formations called bractéolos that are like ears or bracts of firm consistency, which in the case of pitahaya are called mamilas and have groups of thorns 1.5 cm long that stand out to the eye around the entire fruit. The flesh is juicy and fleshy.

**Smell:** slightly sweet with a subtle aroma that does not cloy or saturate the sense of smell.

**Flavour:** with edible pulp of pleasant taste, its flavour is prolonged in the mouth. Quite sweet with slight acidity.

### **Fruit classification**

#### **CATEGORY (A)**

It is fruit with a weight  $\geq 290$  gr, to be considered for export the percentage of stain on the fruit must be  $\leq 10\%$  and for the national market it must have a percentage of stain on the fruit up to 50%. If the fruit has a spot percentage  $>50\%$ , it will be considered category B fruit even if it exceeds the normal grade weight for that category.

#### **CATEGORY (B)**

It is fruit with a weight between 260 gr to 289 gr, to be considered for export the percentage of stain must be  $\leq 10\%$  and domestic market must have a percentage of

stain up to 50%. In case of having a percentage of stain >50% will be considered as category C fruit even though more than the normal grade weight for that category.

#### CATEGORY (C)

It is fruit with a weight between 200 gr to 259 gr, to be considered for export the percentage of stain must be  $\leq 10\%$  and domestic market must have a percentage of stain up to 50%. In case of having a percentage of stain >50% will be considered as category D fruit even though more than the normal grade weight for that category.

#### CATEGORY (D)

Category D refers to fruit that does not meet the criteria of the previous categories (A, B and C) and are discarded. This category includes:

Damaged fruit: significant damage to the peel, such as bruises, dents, deep cuts or bruises.

Fruits that are green or overripe, may affect flavor and texture.

Fruit with slight marks or blemishes on the peel, but which do not affect the quality or flavor of the fruit.

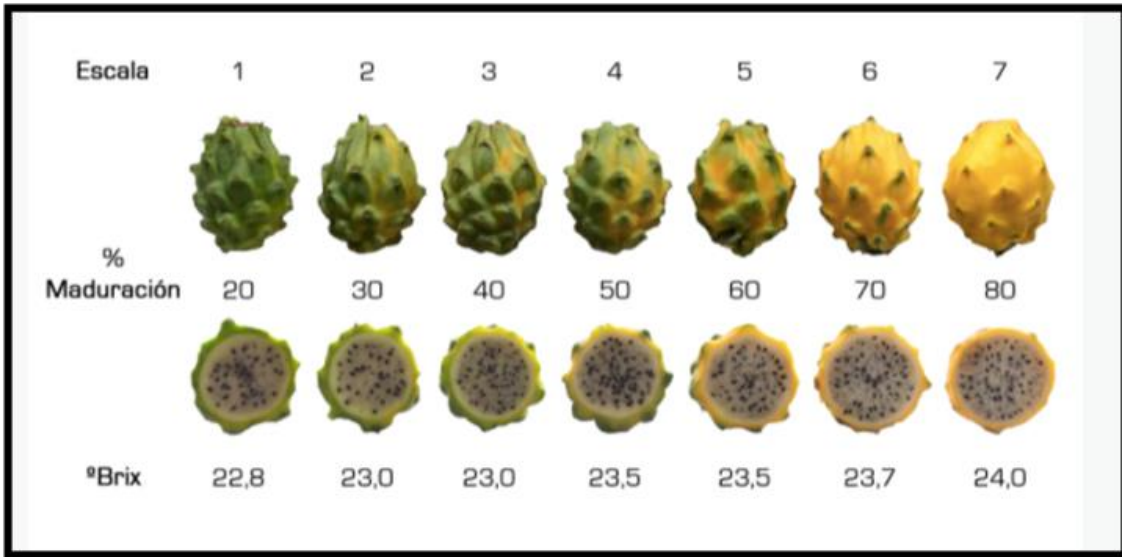
Deformed fruits: Fruits that do not have a typical shape or size but can still be consumed.

#### **Requirements**

The fruit must be marketed when it has reached physiological maturity (from grade 2 to grade 6 maturity).

In none of the cases the pulp of the fruit must be affected or exposed.

## Pitahaya Ripening, maturity and Brix (sweetness) Scale



- Pitahayas must be packed within 24 hours of harvest at an approved collection center registered with AGROCALIDAD that guarantees pest suppression.

### 3.3 Feed (for products of animal origin only) and raw materials (for processed products only)

N.A.

### 3.4. Specific steps in production that must take place in the identified geographical area

The fruit from sowing to harvesting is obtained in the geographical area.

### 3.5. Specific rules concerning slicing, grating, packaging, etc. of the product the registered name refers to

N.A.

### 3.6. Specific rules concerning labelling of the product the registered name refers to

N.A.

## 4. Concise definition of the geographical area

Ecuador, Morona Santiago Province, Palora canton.

## 5. Link with the geographical area

### Environmental impact

Pitahaya is an exotic fruit. Its natural state is found on top of trees and branches in the rainforest. The plant climbs trees to feed on sunlight and benefits from the humidity of the tree canopy and nutrients in the air. Palora has a varied climate ranging from the humid tropical climate of the Amazon to the cold climate of the Andean zones of the Sangay volcano, with an average temperature: 22.5 degrees Celsius and annual rainfall: 3000 - 4000 mm.

High rainfall ranges from July to December and reaches up to 5,000 mm; and in summer with low rainfall up to 200 mm is located in the months of January, February and March, its relative humidity is 85%. Pitahaya plants depend on pollinators, such as bees and bats, for successful fruiting. The presence of these pollinators and the availability of nectar-rich flowers in Palora are crucial for proper pollination.

Ecological Classification: According to Holdrigger (Life Zone Classification System), Palora has the following zones: tropical rainforest (bhT), montane rainforest (bhMB), and sub-Andean rainforest (bpSA). The soils predominant in this region belong to the inceptisol order, rather young and poorly developed soils that are just beginning to show the development of horizons; processes of translocation and accumulation can occur, they constitute a subsequent stage of evolution with the entisols, however, they are considered immature in their evolution.

Inceptisols occur in any type of climate and have originated from different parent materials (resistant materials or volcanic ashes), in positions of extreme relief, steep slopes or young geomorphological depressions, encompassing soils that are very poorly drained or well drained soils. The use of these soils is diverse, the slope areas are suitable for reforestation, while the soils of artificially drained depressions can be cultivated. The well-drained soils with good organic matter content in these depressions are ideal for the development of the Pitahaya crop which along with a generally temperate climate and good agricultural practice produces a product of excellent quality.

These factors contribute to the larger size, higher acidity and the sweeter longer lasting taste of the fruit in contrast with other pitahaya varieties. The plantation can

live more than 30 years. Production begins in the first year after the crop is established, with an average of 5 to 8 fruits per plant and increases continuously until the fifth or sixth year when it reaches an average production of 7 kg. per plant. Several planting densities are used the most common being 1000 plants per hectare, however using a planting density of 2200 plants per hectare would result in 20 tons of fruit per hectare. For a recommended planting density of 2,200 plants per hectare, it represents an approximate productivity of 20 tons per hectare of which 70% are of a quality for exportation.

## **Skills**

Pitahaya growers have developed a variety of skills related to cultivation, land preparation, mentoring, plant management and problem solving. These skills have evolved over time through hands-on experience, knowledge sharing and continuous learning, enabling them to produce high quality pitahaya crops.

At the beginning of the production of pitahaya in Palora farmers found difficulties in the reproduction of the plant since it deteriorated quickly and did not have an adequate adhesion to the soil. For this reason, the first farmers try placing a cutting in a cement ring with ash, chicken manure, bagasse manure and tea manure, in this way they managed to replicate the reproductive process. For the production of pitahaya, it is necessary to prepare the soil mainly with the excavation of drains to adapt the plant to the topography and natural conditions of the land. Once the area of land is selected and prepared for planting, the plants and alleys are delineated and laid out to locate them in a distance between plants of 2.5 cm apart and between rows (alley) 4m, giving a density of 1000 plants per hectare. Due to the fact that the pitahaya plant corresponds to a botanical species of cactus for its growth and adequate adhesion to the soil it is important to place temporary stakes or tutors, which can be made of wood, to which the plant will be tied for proper growth. These tutors should be replaced after the first six months by cement poles up to 2 meters high, resistant to the elements, which will remain permanently supporting the plant. This tutorship system has been replicated among all growers, in order to carry out an adequate plantation.

Pitahaya growers consider environmental factors and take appropriate measures to mitigate any adverse effects. This may include providing shade during hot periods, implementing proper irrigation techniques, protecting plants from high winds, and maintaining a suitable soil environment. By managing these factors, growers can optimize fruit quality and yield.

