

Peruvian Ground Cherry - Cape Gooseberry

Macherla Chandana

Teaching Associate, Sri Konda Laxman Telangana State Horticultural University, Mulugu, Siddipet (D),
Telangana

SUMMARY

Exotic fruits play an important role in nutrition as an excellent base for low calorie and dietetic products. Highly valued for its unique flavor, texture and color, recent research has shown cape gooseberry (*Physalis peruviana*) to be high in many beneficial compounds. The diversity of functional applications to which *P. peruviana* can be put gives this fruit great importance. The food industry has used cape gooseberry in different products including beverages, yogurts and jams. With the rapidly growing popularity of this unique fruit, it is important to have a comprehensive reference for its nutritional benefits. This review provides a valuable source for current knowledge on bioactive phytochemicals and further development of *P. peruviana* for functional foods as well as nutraceutical and pharmaceutical industries.

INTRODUCTION

Cape gooseberry (*Physalis peruviana*), species of ground cherry in the nightshade family (Solanaceae) and its edible fruit. The plant is native to Colombia, Ecuador, and Peru and was widely grown in South Africa beginning in the 19th century, which is likely the source of its common name. It is unrelated to true gooseberries of the genus *Ribes* (family Grossulariaceae). Cape gooseberries are bittersweet, slightly tart, and quite juicy. They have some of the acidity of a cherry tomato and notes of citrus fruits, pineapple, peaches, and cherries. The name of Cape gooseberry is most probably derived from the name of “Cape of God Hope” of South Africa where it was commercially grown. The ripe fruits are eaten as fresh fruit and used in making excellent quality of jelly, sauces and particularly jam for which it is called as “Jam fruit of India” The fruits are also attractive sweet when dipped in chocolate or other glazes or pricked and rolled in sugar. The fruits contain 1.8% protein, 0.2% fat and 11.5% carbohydrates. It is also content 10 mg of calcium, 60mg of phosphorus and 18mg of iron, thiamine 0.1mg and 1.70mg niacin and high level of vitamin A, B, C. It contains 2380 IU of vitamin A and 49 mg of vitamin C, and produce 55 calories of heat per 100g. of fruit (Khan and Gower, 1955).

Taxonomic classification

Domain : Eukaryota

Kingdom : Plantae

Phylum : Spermatophyta

Subphylum : Angiospermae

Class : Dicotyledonae

Order : Solanales

Family : Solanaceae

Genus : *Physalis*

Species : *Physalis peruviana*

Scientific name : *Physalis Peruvian*

Common name : Cape gooseberry, Peruvian Ground cherry, Inca Berry, Ras bhari (India).

Family: - Solanaceae

Origin : Andean highland of Northern South America

Uses:-

- The crude extract of the fruit-bearing plant has demonstrated anti-hepatoma and anti-inflammatory activities.
- It has shown possible anti-diabetes and anti-hypertension properties *in vitro*
- Anti-hepatotoxic effects (in rats) against CCl₄ were found
- In folk medicine, *Physalis peruviana* has been used as a medicinal herb to treat cancer, leukemia, malaria, asthma, hepatitis, dermatitis and rheumatism. None of these diseases, however, is yet confirmed in human clinical *in-vivo* studies as treatable by the cape gooseberry.

- Physalis fruit is a good source of vitamin C, beta-carotene, iron, calcium and trace amounts of B vitamins. These have been used as a diuretic in traditional medicine, although there is no scientific data to support this.
- All kinds of Bacterial infections.
- Cancer and leukemia
- Mycoplasma and mycobacteria infections
- Skin diseases (dermatitis, psoriasis, skin infections, scleroderma, *etc.*,)
- All kinds of vital diseases.
- They are an excellent source of provitamin A, vitamin C, iron, and some of the vitamin B-complex. The protein and phosphorus levels in the fruits are exceptional as well as pectin that is used in jam production.

Origin and distribution:-

The origin of Cape gooseberry is the Andean highland of Northern South America. Native to high-altitude, tropical Peru, Colombia, Chile, and Ecuador where the fruits grow wild. In South Africa, it is commercially cultivated; canned fruits and jam are staple commodities, often exported. It is also cultivated and naturalized on a small scale in Gabon and other parts of Central Africa. The Cape gooseberry (*Physalis peruviana* L.) is the second highest fresh fruit export in Colombia. Because of its nutritional and medicinal attributes, it is attractive for international markets. Colombia is the top producer of Cape gooseberry worldwide followed by South Africa.



Plant



Flower



Fruits

Botanical description:

The plant is an annual with a much branched, spreading form, and a rank, feeble looking appearance. It grows to 3-6 ft in height and falls over the land and sprawls on the ground if not given support.

Flowers: Are yellow in color with purple markings. The flowers are hermaphrodite and are pollinated by Bees, wind.

Fruit: Is a smooth berry, resembling a miniature spherical yellow tomato. Removed from its cape, it is about the size of a marble, say 1-2 cm in diameter. Like a tomato, it contains numerous small seeds. It is bright yellow to orange in color, and it is sweet when ripe, with a characteristic, mildly tart flavor, making it ideal for snacks, pies or jams. It is popular in salads and fruit salads, sometimes combined with avocado. A prominent feature is the inflated, papery calyx enclosing each berry. The calyx is accrescent; at first it is of normal size, but after the petals fall it continues to grow until it forms a protective cover round the growing fruit. Because of the fruit's decorative appearance, it is popular in restaurants as an exotic garnish for desserts. If the fruit is left inside the husks, its shelf life at room temperature is about 30–45 days.

Climate and Soil :

In Colombia. It grows as wild and semi wild plants in high zones between 1500 and 3000 MASL. The Cape gooseberry is cultivated in moderately cold regions (1800–2800 MASL), in Cundinamarca, Boyaca and Antioquia. Most favorable temperature for leaf and root dry matter production is 22⁰C during the day and 14⁰C in the night. The plant favors like light (**sandy**), medium (**loamy**) and heavy (**clay**) soils, it requires well-drained soil to grow and it can grow in nutritionally poor soil.

Propagation: By seeds.

Flowering and development :

It flowers from July to October, and the fruits ripen from August to November.

The best *Physalis peruviana* varieties:

Heitmann:

This variety, bred specifically for early ripening, can grow up to 150cm. The fruit is a little smaller than other types, but it makes up for that in the large quantity of husked berries it yields.

Inca Plum:

These plants grow up to 150cm high with a high yield of cherry-sized berries. The deep orange berries are sweet and juicy with just the right level of acidity.

Lady Madonna:

This juicy-sweet variety has strikingly elongated pods with large orange-yellow berries, and also grows up to about 150cm in height.

Little Lanterns:

This physalis is perfect for growing in a pot, in a hanging basket or on the balcony. They produce an abundant yield of cherry-sized, orange fruits.

Preciosa:

This is one of the smaller physalis varieties, only growing up to about 80cm in height. It produces lots of small golden-yellow fruits and ripens as early as mid-August

Schonbrunner Gold:

The sweet, tangy fruits of this variety are particularly large, and a lush dark yellow colour. The plant can grow up to 2m high.

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