

## An updated review on *Physalis peruviana* fruit: Cultivational, nutraceutical and pharmaceutical aspects

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Plants have always been rich sources of medicinally active constituents in the quest for curing numerous diseases. Among those, *Physalis peruviana* has been utilized traditionally as a therapeutic (antispasmodic, diuretic, antiseptic, sedative, and analgesic) and nutraceutical herb. It contains numerous active components like essential minerals,  $\alpha$ -linolenic acid, iron, vitamins, carbohydrates, phytosterols etc. Its potential as a multifunctional agent in beverages, foods and nutraceutical industries makes it an important crop for consideration. From the agricultural point of view, this fruit is a profitable commercial crop for arid regions also and does not require much effort and investment for cultivation. It easily grows in wild and arid regions. Despite being a nutraceutical and a medicinally important crop, its utilization is not up to the mark. Thus the objective of the present review was to explore and emphasize the nutraceutical and therapeutic potential of *Physalis peruviana*. It provides exhaustive insight into the origin, distribution, cultivation, harvesting, active constituents and its prospective utility in food, nutrition and pharmaceutical industries.

**Keywords:** Antioxidant, Goldenberry, *P. peruviana*, Therapeutic.

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### Introduction

Plants have been a rich treasure trove of prophylactic and therapeutically active constituents in the treatment of numerous diseases. The use of herbal medicines is on a steady increase with times. According to the World Health Organization, 70-80 % of the world population uses plant-derived traditional methods for the treatment of various health problems<sup>1,2</sup>. Fruits comprise of known health benefits since times immemorial, the minor fruit crops viz. wood apple (*Aegle marmelos*), Chinese date (*Ziziphus mauritiana*), phalsa fruit (*Grewia asiatica*), Indian gooseberry (*Phyllanthus emblica*) and breadfruit (*Artocarpus communis*) are examples of fruits with immense therapeutic benefits<sup>3-5</sup>.

*Physalis peruviana* var. *latifolia* (*P. peruviana*) known as cape gooseberry or golden berry, belongs to Solanaceae family and is grown in Egypt, Colombia, South Africa, India, New Zealand, Australia, Zimbabwe, Kenya and Great Britain. Colombia is one of its largest producer, consumer and exporter<sup>6</sup>. The genus *Physalis* includes around

100 species characterized via fruits bearing an inflated calyx<sup>7,8</sup>. It is a tropical plant with hairy, fuzzy, heart-shaped, slender-pointed leaves bearing yellow flowers and orange edible fruits. They bear a thin defensive covering which resembles a Chinese lantern to guard them from birds and bugs<sup>9</sup>.

Present review deals in detail with cultivational, therapeutic and nutraceutical aspects of *P. peruviana* fruit. It also briefly discusses its culinary advantages and few nutraceutical formulations that have been tried either through extract or juice.

### Horticultural aspects

#### Botanical Classification

Linnaeus first described *Physalis* as a genus, in 1753. United States Department of Agriculture (USDA) classified *P. peruviana* in Solanaceae family, Genus *Physalis*. (Groundcherry plant) and species *peruviana* (Peruvian groundcherry plant).

The name *Physalis* is derived from the Greek 'Physsa' (bladder or bulb), for having a fruit wrapped in a characteristic capsule. The flowers are hermaphroditic, with a yellow tubular corolla, which facilitates pollination through insects and wind<sup>10</sup>.

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