

# CHERRY TOMATOES: A BOUNTIFUL SOURCE OF NATURAL NUTRACEUTICALS

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## INTRODUCTION

Cherry tomato is the tiny ancestral form of the tomato. Scientifically it is *Solanum lycopersicum* var. *ceraciformae* with chromosome number  $2n=2x=24$ . This is indigenous to the Ecuadorian and Peruvian Andean region. The plants can be found growing in the wild, at home gardens, along roadways, close proximity to landrace tomato varieties, or as a cultivated crop. It is a highly valuable berry vegetable which produces tiny, attractive fruits with a distinctive flavor and beneficial nutritional content. The fruits size and shape can vary from spherical to slightly oblong, and they can be as tiny as the tip of a thumb to as huge as a golf ball. Its fruits are now available in a variety of colors and shapes, including red, yellow, orange, brown, black, and purple. They also come in round, oval, or egg-shaped, pear-shaped, and cylindrical form. When the plant nutritional status is adequate, it produces little fruit in long panicles that are flavorful and pleasant for consumption. Its plant is more resilient than a typical tomato and may be grown outdoors and under protection in poly houses, glass houses, or shade-net houses. However, yield and fruit quality are higher when indeterminate cultivars are cultivated in protected environments.

## NUTRACEUTICAL PROPERTIES AND HEALTH BENEFITS

Due to higher concentrations of sugars (fructose and glucose) and organic acids (citric and malic), which are crucial in determining the sweetness, sourness, and overall flavour of most cherry tomato varieties. Fruits have higher levels of dry matter and soluble solids than normal tomatoes.

Vitamins, fibre, folic acid, and lycopene are all naturally occurring in cherry tomatoes. Fruits contain a wealth of minerals and other elements. However, colour, size, and other genetic and environmental factors can also affect the fruit's qualities. For instance, fruit quality of red fruited cv. Cheramy contained more lycopene and ascorbic acid along with mean fruit weight and fruit volume than yellow fruited cv. Sheeja which had higher in TSS content and pericarp thickness, but total phenol content was almost similar between the two distinct cultivars. These authors also found that some of the quality parameters changed due to grafting onto some rootstocks. The nutritive values of raw and red ripe cherry tomato fruits are presented in table 1



**Table 1. Nutrition value (per 100 g) of raw, red-ripe cherry tomato fruits**

Principle	Nutrient Value	% of RDA
Energy	18 Kcal	1%
Carbohydrates	3.9 g	3%
Protein	0.9 g	1.6%
Total Fat	0.2 g	0.7%
Cholesterol	0 mg	0%
Dietary Fiber	1.2 g	3%
<b>Vitamins</b>		
Folates	15 µg	4%
Niacin	0.594 mg	4%
Pyridoxine	0.080 mg	6%
Thiamin	0.037 mg	3%
Vitamin A	833 IU	28%
Vitamin C	13 mg	21.5%
Vitamin E	0.54 mg	4%
Vitamin K	7.9 µg	6.5%

Principle	Nutrient Value	% of RDA
<b>Electrolytes</b>		
Sodium	5 mg	>1%
Potassium	237 mg	5%
<b>Minerals</b>		
Calcium	10 mg	1%
Iron	0.3 mg	4%
Magnesium	11 mg	3%
Manganese	0.15 mg	6.5%
Phosphorus	24 mg	3%
Zinc	0.17 mg	1.5%
<b>Phyto-nutrients</b>		
Carotene-β	449 µg	--
Carotene-α	101 µg	--
Lutein-zeaxanthin	123 µg	--



In addition to offering essential nutrients, it also has health advantages, which is why it is categorized as a functional food. These are a good source of vitamins, organic acids, phyto-nutrients such as carotenoids, flavanoids and lutein. The regular use of cherry tomato helps maintain healthy muscles, nervous system and the health of the eyes. It favors elimination of liquids and being low in calories it is considered ideal for diet. The cherry tomato powders' crude protein level, which ranged from 8.3 to 14.2 g/100 g dry wt., is comparable to that of grains like rice and wheat.

Cherry tomatoes are an excellent source of potassium, and eating more foods high in potassium can lower blood pressure. Antioxidant activity was found to be the most potent in cherry tomatoes because of the high phenolic, ascorbic acid, and lycopene content. The fruits harvested at full ripe stage shown highest level of carotenoids and antioxidant activity. Ascorbic acid content did not alter significantly at different ripening stages, but the major phenolic content and the antioxidant activity did, with the latter stages of ripeness showing a minor but substantial decline. These tomatoes antioxidants are crucial for preventing chronic illnesses like cancer, neurological disorders, cardiovascular disease, cataracts, and asthma, as well as for boosting immune system performance. Comparable to tomatoes, cherry tomatoes are a great source of lycopene, a substance that may prove helpful in preventing problems including inflammation and blood clotting. These have been shown to reduce the incidence of ischemic strokes, which happen when blood clots form in the brain and obstruct blood flow, as well as osteoporosis because they promote bone health. Cherry tomato extract at a concentration of 300 mg/mL have preventive and therapeutic effect against human cervical and liver cancer cells. High levels of lycopene and neurosporene in red cherry pulp have been linked to strong antiproliferative effect against four tumor



cell. In addition, these are beneficial in weight loss owing to richness in fibre, which may help feel fuller for longer, allowing us to eat less throughout the day.

The amino acid metabolite GABA is the most frequent of the metabolites in the cherry tomato cultivars, indicating that these tomatoes are a good source of GABA due to its role as a neurotransmitter (chemical messenger that carries, boosts, and balances signals between neurons) as well as other putative biological roles. The cherry tomato peel powder, at 0.02% concentration, have anti-trichomonad inhibitory activity. Dysfunction of the endothelium has been identified as an early step in the pathogenesis of cardiovascular disease (CVD). CVDs are the leading cause of death representing 31 % of global deaths. Plant-based dietary patterns have been shown to influence cardiovascular risk factors and CVDs. By consuming 300 grammes per day of red cherry tomatoes for 4 weeks, significantly improved endothelium functioning, which helps prevent cardiovascular disease.

## CONCLUSION:

These cherry tomatoes are greatest source of natural nutraceuticals, rather than consuming nutritional supplements, eating these as a snacks and salads in daily diet will surely help in solving various health problems. This rich lycopene acts as flavonoid antioxidant, a unique phytochemical compound found in red cherry tomatoes tend to possess more of this antioxidant. Together with carotenoids, lycopene may decrease the risk of certain cancers and heart disease and also help to keep the immune system healthy. through scavenging harmful oxygen-free radicals. Lycopene gives modest protection against skin cancer by shielding the skin from ultraviolet (UV) rays, according to studies. Another flavonoid component that is plentiful in cherry tomatoes is zeaxanthin. By blocking harmful ultraviolet radiation, zeaxanthin aids in the prevention of "age-related macular disease" (ARMD) in older persons. Vitamin A serves a significant role as an antioxidant, supporting the maintenance of healthy mucosa and skin along with flavonoid antioxidants including and  $\beta$ -carotenes, xanthins, and lutein. It has been discovered that eating naturally occurring foods high in flavonoids can help prevent oral and lung cancer. They include sufficient amounts of vital minerals including iron, calcium, manganese, and other trace elements, as well as B-complex vitamins like folates, thiamin, niacin, and riboflavin. Unripe green fruits can be prepared in the form of pickles and chutney. Due to their sweet flavor and taste, ripe fruits can be eaten as a snack. Consequently, cherry tomato fruit offer multiple benefits.

