Journal of Environmental Science and Engineering B 11 (2022) 267-271
doi:10.17265/2162-5263/2022.06.005

Tomato and Romerito Edible and Important Plants for Human Health

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Abstract: Two plant foods are presented, Romerito and tomato, with nutritional properties that can help improve people's diets. Both can be grown in the open field, in a greenhouse or in a pot all year round. The Romerito grows in semi-arid soil. Both the Romerito and the tomato contain vitamins, minerals and fiber which make them complete foods. Tomato can be used in cosmetology as well.

Key words: Romerito, tomato, vegetable food.

1. Introduction

Given the environmental, economic and food conditions worldwide, it is convenient to present vegetable food alternatives that stand out from the rest for their nutritional properties and ease of cultivation, such as: Romerito and tomato. In the case of Romerito, it is still little known in Mexico in some regions of the country, the opposite of tomato, which is widely known and used in Mexican food.

1.1 Romerito

The Romerito is a plant native to central Mexico, it has been known since the time of the Aztecs.

It has the characteristic of being able to be cultivated in semi-arid soils, so it can be available throughout the year, even though it is not usual to consume it regularly, only in some traditional dishes at Easter and December holidays, mainly in the central region from the country.

The Romerito has the properties of containing the minerals iron and potassium, vitamins A and C, being rich in fiber; it also contains bioactive substances called phytochemicals such as chlorophyll that protect cells from oxidation and DNA (Deoxyribonucleic Acid) damage.

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1.2 Tomato

It has the characteristic of being able to be grown in the open field, in a greenhouse and in a pot.

The tomato production season is carried out throughout the year, with some restrictions or limitations in winter when it is grown in the open field, especially in areas with a high probability of frost; it is advisable to avoid very clayey or very sandy soils and it is appropriate that they have a slight slope of 1% to 2%, with good exposure to sunlight. The soil should preferably be porous and deep, with a high content of organic matter and a good level of nutrients.

Tomato should not be cultivated in compacted soils and those that present possibilities of being flooded.

In Mexico, the tomato is part of the habitual diet of its inhabitants, not so much for its properties but for the flavor that it imparts to the dishes.

2. Materials

2.1 Romerito

In Mexico it is a species that is naturalized and cultivated, two varieties are recognized: var. esculentum and var. leptophyllum [1].

It is a bushy, perennial, erect or semi-prostrate plant, with branches with many leaves that give it the appearance of a small shrub.

Table 1 Taxonomic classification of Romerito.

Kingdom	Plantae
Subkingdom	Tracheobionta vascular plants
Superdivision	Soernatophyta seed plants
Division	Magnoliophyta flowering plants
Class	Dicotyledonous Magnoliopsida
Subclass	Caryophyllidae
Order	Order caryophyllales

Ref. [2].

Size: 0.6 to 1 m (1.96 to 3.2 ft) tall.

Stem: Cylindrical and striated when young, later smooth, green or sometimes reddish, hairless and highly branched.

Leaves: alternate, green, cylindrical or somewhat flattened, fleshy, up to 4 cm (0.13 ft) long, generally broader towards the apex, which is acute, edge entire. The leaves of the inflorescence very reduced.

Inflorescence: small flowers, with membranous bracts, dry and translucent at the base, solitary or in small groups, from 1 to 5 flowers in the leaf axils.

Flowers: The calyx is not distinguished from the corolla, the structure that protects the ovary and/or the stamens is called the perianth. The perianth of 5 curved segments, equal to each other or one of them unequal; stamens usually 5; 2-5 stigmas, recurved.

Seeds: Two types: one that is dispersed in a fruit that easily releases the seed and the other in an indehiscent utricle that does not release it even when rubbed and if it is attempted to detach it damages the seed. Seeds free, ovate to circular in outline, up to 1.4 mm (0.55 in.) long and up to 1.2 mm (0.04 in.) wide; dorsoventrally flattened, surface shiny, almost smooth, reddish-brown or very dark reddish-brown, almost black. Seeds found in utricles are circular or nearly circular in outline, up to 1.8 mm (0.31 in.) in diameter, irregular and rough fruit surface, green or grayish-green in color.

Seedlings: Hypocotyl cylindrical, 18-25 mm (0.7-0.9 in.) long, red to purple; cotyledons sessile, 6-8 mm (2-3 in.) long and up to 1.5 mm (0.05 in.) broad, apex obtuse-apiculate; cotyledon succulent, epicotyl elongate, up to 5 mm (0.19 in.) long, reddish or greenish. Leaves opposite, sessile, linear-oblong, succulent, up to 8 mm (0.31 in.) long and 1 mm (0.03 in.) wide, apex obtuse.

Habitat: It is grown in saline soils. It grows wild in halophytic grasslands.

Annual or perennial plant: Espinosa and Sarukhán [2] mention that among the crops behaves as a summer annual.

Phenology: Blooms from April to October.

Fruit: Dry that does not open, containing a single seed with a membranous cover separated from the seed, containing a single one; This fruit, called the utricle, is obovoid-lenticular and is enclosed in the perianth.

2.2 Tomato

To the Solanacea family, although it is a fruit, it is considered a vegetable. The edible part of the tomato is the fruit since its leaves are toxic.

Scientists say that people who eat tomatoes can reduce their risk of contracting dangerous diseases, due to lycopene, an antioxidant that gives tomatoes their red color and helps remove free radicals from the human body. Free radicals are unstable oxygen molecules and can cause cancer and other dangerous diseases [3].

Tomato contains antioxidants that are compounds capable of inhibiting or retarding oxidation, by capturing free radicals; they also stabilize hydroperoxides or inactivate singlet oxygen. Tomato has been considered an important source of vitamins A, C and E and non-nutritive phytochemicals, lycopene, flavonoids, flavones and total phenolic compounds, whose

Table 2 Taxonomic classification of Tomato.

Kingdom	Plantae
Subkingdom	Tracheobionta, vascular plants
Superdivision	Spermatophyta, seed plants
Division	Magnoliophyta flowering plant
Class	Magnoliopsida dicots
Subclass	Asteridae
Order	Solanales

Ref. [1].

Table 3 Tomato macronutrient properties.

Water	170.10 g
Energy	32 kcal
Protein	1.58 g
Total fat	0.36 g
Carbohydrates	7.06 g
Dietary fiber	2.2 g
Sugar	4.73 g
Saturated fat	0.083 g
Polyunsaturated fat	0.092 g
Grasa polisaturada	0.243 g
Cholesterol	0 mg

Ref. [4].

consumption is related to its antimutagenic potential and anticancer properties.

As an antioxidant it is one of the most interesting properties of tomato, which is explained by its high content of vitamins and minerals with this capacity, specifically C, E, and A.

Now, what really makes the difference in the antioxidant power of tomato is lycopene, a carotene or vegetable pigment that, in addition to being responsible for its beautiful red color, protects our cells from the so-called oxidative stress caused by free radicals; It is also rich in selenium, one of the best micronutrients with antioxidant power [5].

The aforementioned antioxidant properties of tomato favor our body by strengthening the immune system. Tomato antioxidants collaborate so that the cells of the immune system are in the best possible state and protect against external pathogens [6].

All this is favored by the contributions of vitamins C, B and E.

3. Results

3.1 Romerito

The nitrogen, protein and amino acid content of Romerito give it a nutritional value comparable to that of vegetables such as spinach, chard and watercress.

The Center for Research in Nutrition and Health of the INSP (National Institute of Public Health) of Mexico, considers it a food of high nutritional quality since it provides fiber, produces a feeling of satiety, improves intestinal transit and contributes to maintaining adequate cholesterol levels, LDL (Low-Density Lipoprotein) and blood glucose. Its caloric intake is low: a cup of cooked Romeritos provides only 25 calories. It is a great supplier of calcium and vitamins A and C and facilitates the absorption of iron.

Table 4 Mineral concentration of fresh weight of Romerito in 100 g (3.53 oz).

N	1,350.7c
P	141.8d
Mg	661.1c
K	279.0c
Ca	225.5d
Na	3,363.5a
Fe	3.3c
Mn	0.7d
Cu	0.4b
B	6.8a
Zn	0.5d

Ref. [7].

Table 5 Approximate analysis of Romeritos.

Humidity	2.0
Ashes	27.9
Crude protein	23.1
Crude fiber	6.9
Carbohydrates	46.3
Lipids	2.8
Fatty acids	2.25

Ref. [8].

3.2 Tomato

Table 6 Properties of vitamins in 82 g (2.90 oz) of Tomato.

Vitamin C	22.9 mg
Thiamine	0.067 mg
Riboflavin	0.034 mg
Niacin	1.069 mg
Pantothenic acid	0.160 mg
Vitamin A	1,499
Vitamin B-6	0.144 mg
Folate	27 mg
Vitamin E	0.97
Vitamin K	14.2

Ref. [4].

Table 7 Properties of minerals in 82 g (2.90 oz) tomatoes.

	mg
Calcium	18
Iron	0.49
Magnesium	20
Phosphorus	43
Potassium	427
Sodium	9
Zinc	0.31

Ref. [4].

4. Discussion

4.1 Romerito

Traditionally, Romerito has been a wild plant that is usually collected for self-consumption, with the exception of the Holy Week and Christmas seasons, when consumption increases due to its use in traditional dishes of those two seasons.

It can be found mainly in the central region of the country in the States of Puebla, Morelos, Hidalgo, Tamaulipas, Jalisco, Mexico and in Mexico City. Currently in the State of Mexico, the Municipalities of Ecatepec, Texcoco and Chimalhuacán are relevant in this crop. However, it is in Mexico City, specifically in the delegations of Tláhuac and Xochimilco where the largest national production of this crop is concentrated.

4.2 Tomato

The regular consumption of tomato is associated with numerous benefits to human health, such as the prevention of chronic-degenerative and cardiovascular diseases.

Those responsible for these properties in the fruits are the antioxidant compounds that include lycopene, flavonoids, phenols and vitamins such as C and E.

Tomato can be one of the best allies to protect eyesight; The WHO (World Health Organization) has recommended it for its high vitamin A content, which delays vision wear; also degenerative diseases and prevents eye infections caused by viruses and bacteria. It also provides lutein and zeaxanthin, nutrients that protect the macula of the eye, which detects it, from the oxidizing power of light, as well as the lens, which is responsible for focusing.

Tomatoes are very rich in iron, an essential mineral for the blood and in vitamin K that regulates coagulation, which is ideal for improving blood circulation, as well as vitamins C and E.

The aforementioned lycopene lowers bad LDL cholesterol levels and prevents arteriosclerosis.

Lycopene together with tomatine favors the formation of antioxidants by the body, which helps prevent cells from becoming cancerous. This effect has been verified at least in prostate, lung and digestive cancers.

In relation to the latter, as well as stomach cancer, Italian and American researchers found that the extract of the whole tomato consumed in its natural state could have the potential to prevent and even treat stomach cancer.

In a recent study, the blockage of cancer cells in the stomach was observed from the consumption of tomatoes of two different varieties (San Marzano and Corbarino).

It has also been proven that tomato is a very suitable food to prevent kidney and pancreatic cancers.

Its high fiber content regulates intestinal transit and prevents many of the diseases or dysfunctions that affect the gastrointestinal organs, such as chronic constipation [10].

The Spanish Nutrition Foundation recommends tomato to eliminate liquids, since it is very rich in potassium and, on the contrary, low in sodium.

Vitamins A and C protect the gums and give the skin an incomparable radiance.

It is used in cosmetology to make shampoo, which provides unique benefits for the hair, stops premature hair loss and alkalizes the scalp, so that some disorders such as dandruff, seborrheic dermatitis or psoriasis improve significantly, also in homemade masks, due to the contributions of biotin and vitamin C.

5. Conclusions

5.1 Romerito

Due to all the nutritional characteristics of protein, mineral and fiber content, as well as the ease of cultivation, Romerito is a good option for human food.

5.2 Tomato

Tomato is a food that can be considered complete given its nutritional characteristics of vitamins, minerals and fiber.

It has the advantage of being able to be grown outdoors, in greenhouses and in pots with production throughout the year.

Tomato consumption is recommended for men over 40 years of age because the oil contained in the seeds helps to soften the prostate.

Cookies can be made with tomato and whole wheat flour, which contains fiber, resulting in a nutritious cereal.

Tomato residues can be used for pig feed.

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