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273

Evaluation of physiological and microbiological tomatoes cultivars (*Lycopersicon esculentum*) in biotechnology science

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Abstract

The fruits present a great importance in the feeding human being and in the public health, not only for its nutritional wealth, as well as for the easy digestion, rich in minerals and vitamins levels. The tomato fruit (*Lycopersicon esculentum*) can be characterized as a fruit with a complex matrix where, the nutritional quality is evaluated in terms of macronutrients, vitamins and minerals.

The establishment of standards of quality for foods and its degree of relative specifications to the limits of tolerance, relative to the pathogenic microorganisms, depends on the previous knowledge of the microbiotic flora and its interactions with climacteric conditions. The evaluation of the physical and chemical quality of the fruits allows establishing the quality of the fruit and its commercial standardization. The fruits, in its natural state, are susceptible to microbiologic deterioration. The natural ground, water, air and predators, are some examples of interferents with some meaning in the significant increase of the microflora of vegetables.

The main objective of this study was to evaluate and characterize four tomato cultivars: "Redondo", "Rama", "Chupeta" and "Cereja", in their physiological and microbiological profile (pH, moisture content, color, water activity, total soluble solid text, citric acid and ascorbic acid content and microorganisms profile). For the statistical analysis of results, using the univariate analysis (ANOVA) and t-Student with significance level of 5%. All tomatoes cultivars had presented differences ($p < 0.05$), wants in the centesimal characterization as microbiological profile. The tomato cultivar "Redondo", more used in food industry, presented high contents of ascorbic acid (27.91 mg/100g) and it was observed the presence of aerobic mesophilus (1.5×10^3 a 2.3×10^6), mainly in Redondo tomatoes. The total coliforms C.F.U. were 7.1×10^4 observed in Rama cultivar, demonstrating that the botanical aspects influence the nutritional profile of the fruits. Although the absence of information on these national tomatoes cultivars, this study becomes important in the evaluation, characterization and valuation of cultivating them in study, for different areas of the biotechnology, such as: nutrition, industry, dietotherapy and for the agriculture good manufacturing practices.

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