MINERAL CONTENT OF TWO GREENHOUSE TOMATO HYBRIDS

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SUMMARY

Tomato fruits are very appreciated for their flavor and nutritional value being used all over the year in the human diet. Tomatoes are rich in carbohydrates (glucose, fructose, pectic substances, cellulose, hemicellulose). The total sugar content increases progressively from mature green to red stage ranging from 2.8 % to 3.5 %. The organic acids (citric, malic, succinic, oxalic) are the most important components of the flavor of tomatoes and they represent 0.3-0.5 %. The most important vitamins in the tomato fruit are: vitamin C (ascorbic acid, around 23 mg/100 g), provitamin A, β – carotene along with lycopene are the two main carotenoids responsible for color in tomato fruit, with levels varying from 40-65µg/g. In addition to being a predominant pigment in red tomato fruits, lycopene is well known as a good antioxidant, having anticancerous proprieties. Preponderant minerals found in tomatoes are K 2500 mg/kg, Ca 30-50 mg/kg, Fe 1.5mg/kg, Na 130-150 mg/kg, Mg 80 mg/kg 1.

The tomato fruits in the present experiment came from the 16 experimental variants of tomato hybrids cultivated in the greenhouse of USAMV both in the greenhouse soil and in soilless culture. The 16 variants differ due to the distinct technology applied by: the culture system (in the greenhouse soil or in polyethylene bags, on organic substrate), the hybrids used (Cronos or Menhir), the basal fertilization (simple doses or double doses), and the supplementary fertilization (root and root+foliar). The results obtained show high K (3160 mg/kg), Na (266.9 mg/kg), Fe (3.79 mg/kg), Mn (1 mg/kg) and Zn (1.35 mg/kg) content at the variants cultivated on organic substratum, particularly for variant 12 (Cronos in polyethylene bags root+foliar fertilized). Menhir in polyethylene bags root+foliar fertilized shows normal levels of K (2658 mg/kg), Ca (47.64 mg/kg), high Mn (0.87 mg/kg), Zn (1.09 mg/kg), Na (216 mg/kg). Low mineral content is registered by the control, Cronos planted in the greenhouse soil: Mg (62 mg/kg), K (1915 mg/kg), Ca (20 mg/kg), Mn (0.33 mg/kg) and normal values for Na (135 mg/kg).

The results obtained point out that the tomato fruits that came from the plants cultivated in polyethylene bags, on organic substrate, that were both root and foliar fertilized registered the highest mineral content. It can be concluded that a proper fertilization has a positive influence on the tomato fruit quality.

REFERENCES

1. Hernandez et al., 2005, Chemical Composition Of cultivar of Tomatoes Resistant and Non Resistant against The Tomato Yellow Leaf Curl Virus(TYLCV), EJEAFChe, 4 (5), 1049-1054.