

Effect of foliar application of micronutrients on yield and quality of tomato (*Lycopersicon esculentum* Mill.) cv. PHULE RAJA

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ABSTRACT

The yield and quality parameters like number of marketable and unmarketable fruits per plant, total fruits per plant, T.S.S. (⁰Brix), Acidity (%) and T.S.S. : Acid ratio were influenced significantly due to different treatments. The combination of Boron 50 ppm + Iron 100 ppm + Zinc 100 ppm was most effective in increasing the total number of fruits (23.88), number of marketable fruits per plant (20.34) and minimum number of unmarketable fruits (3.54) per plant. The combine application of boron 50 ppm + Iron 100 ppm + zinc 100 ppm was most effective for improving T.S.S. (3.82⁰ Brix) and decreasing acidity (0.27 %) of tomato fruit.

Key words : Micronutrients, T.S.S., Acidity, ⁰Brix, ppm

Tomato (*Lycopersicon esculentum* Mill.) is one of the most commonly grown vegetable crop of the world due to its wide adaptability under various agroclimatic conditions. In India, it occupies an area of 5.35 Lakh hectares with annual production of 93.62 MT (Anonymous, 2008). It is one of the most popular and widely grown vegetable in the world ranking second in important to potato in many countries. The fruits are eaten raw or cooked. Its many forms are adopted to wide range of soils and climates extending from the tropics to almost the Arctic circle. It has many other uses; tomato seeds contain 24 per cent oil used as salad oil and in the manufacture of margarine. The productivity of tomato in India is 17.50 MT ha⁻¹ which is quite low and it is being affected in different areas due to deficiencies of micronutrients observed primarily due to intensive cropping and imbalanced fertilization. Tomato being a heavy feeder and exhaustive crop removes substantial amount of micronutrients from soil. To maintain sustainability in its production and nutritive value, it is becoming essential to apply micronutrients through foliar spray to meet the immediate need of the crop. The micronutrients like boron, zinc, copper and iron, if applied through foliar can also improve the yield of tomato (Arora *et al.*, 1983). Response of vegetable crops to the application of small quantities of micronutrients element have been reported by Mallick and Muthukrishnan (1980) in tomato. An investigation was, therefore, conducted to find out the influence of foliar application of micronutrients on yield and quality tomato cv. PHULE RAJA.

MATERIALS AND METHODS

A field experiment was conducted at Instructional-

cum Research Farm, Department of Horticulture, College of Agriculture, Latur, Marathwada Agricultural University, Parbhani during *Kharif* 2008-09. The experiment was laid out in a randomized block design with nine treatment *viz.*, T₁) Control T₂) boron 50 ppm T₃) boron 100 ppm T₄) Iron 100 ppm T₅) iron 200 ppm T₆) zinc 100 ppm T₇) Zinc 200 ppm T₈) boron 50 ppm + iron 100 ppm + zinc 100 ppm and T₉) boron 100 ppm + iron 200 ppm + zinc 200 ppm. The micronutrients were applied in the form of borax, ferrous sulphate and zinc sulphate as source of boron, iron and zinc, respectively. The crop was raised at a spacing 60 cm x 60 cm with recommended dose of N, P and K *viz.*, 100: 50: 50 kg/ha, respectively. The required concentration of micronutrients were prepared by directly mixing required quantity of micronutrients in water and those spray solutions were used for spraying immediately after preparation. The spray of micronutrients was given using hand sprayer (Ganesh). These sprays are given at 30, 40 and 50 days after transplanting. All the leaves on both sides were completely sprayed with micronutrients. Precautions were taken to avoid the drizzling of the sprays on the other treatments. Observations were recorded and statistically analyzed as per method given by Panse and Sukhatme (1967).

RESULTS AND DISCUSSION

The results obtained from the present investigation are summarized below:

Effect on yield :

The data (Table 1) indicated that differences among the number of fruits per plant were significantly influenced due to different treatments under study. The highest