



Research Paper

Article history :

Received : 15.03.2012

Revised : 15.11.2012

Accepted : 07.12.2012

Effect of different plant growth regulators and micronutrients on fruit characters and yield of tomato cv. GUJARAT TOMATO-3 (GT-3)

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ABSTRACT : An experiment was conducted to find out the effect of different plant growth regulators and micronutrient on fruit characters and yield of tomato cv. GUJARAT TOMATO-3 (GT-3) at Horticulture Farm, Junagadh Agricultural University, Junagadh, Gujarat, India during 10 December, 2010 to 10 April, 2011. Eleven different treatments consisted of four plant growth regulators and three micronutrients were used, viz., T₁ = gibberellic acid @ 50 ppm, T₂ = gibberellic acid @ 75 ppm, T₃ = naphthalene acetic acid @ 50 ppm, T₄ = naphthalene acetic acid @ 75 ppm, T₅ = boron 50 ppm, T₆ = boron 75 ppm, T₇ = zinc 0.5 per cent, T₈ = zinc 1 per cent, T₉ = iron 100 ppm, T₁₀ = iron 150 ppm and T₁₁ = Control (No application of plant growth regulator and micronutrients) in the study. The fruit characters and yield parameters in plant significantly differed due to different plant growth regulators and micronutrient on tomato. The maximum fruit length (7.57 cm), girth (6.47 cm) and pulp-seed ratio (12.93) was found in T₂ = gibberellic acid @ 75 ppm, whereas fruit weight (57 g), yield plant⁻¹ (2.47 kg) and yield hectare⁻¹ (913.258 q/ha) were found in treatment T₄ = naphthalene acetic acid @ 75 ppm and the minimum for all the parameters were found in control treatment.

KEY WORDS : Naphthalene acetic acid, Gibberellic acid, Boron, Zinc, Iron, Growth, Yield, Tomato

HOW TO CITE THIS ARTICLE : Desai, S.S., Chovatia, R.S. and Singh, Virendra (2012). Effect of different plant growth regulators and micronutrients on fruit characters and yield of tomato cv. GUJARAT TOMATO-3 (GT-3), *Asian J. Hort.*, 7(2) : 546-549.

Tomato (*Lycopersicon esculentum* MILL.) belonging to Solanaceae and its origin is the Andean zone particularly Peru- Ecuador Bolivian areas but cultivated tomato originated in Mexico (Salunkhe *et al.*, 1987). Tomato is one of the most highly praised vegetables consumed widely and it is a major source of vitamins and minerals. It is one of the most popular salad vegetables and is taken with great relish. It is widely employed in cannery and made into soups, conserves, pickles, ketchup, sauces, juices etc. Tomato juice has become an exceedingly popular appetizer and beverage. The well ripe tomato (per 100 g of edible portion) contains water (94.1%), energy (23 calories), calcium (1.0 g), magnesium (7.0 mg), vitamin A (1000 IU), ascorbic acid (22 mg), thiamin (0.09 mg), riboflavin (0.03 mg) and niacin (0.8 mg) (Davies and Hobes, 1981). Plant growth substances are essential for growth and development of tomato plant. It plays an important role in flowering, fruit setting, ripening and

physiochemical changes during storage of tomato. GA₃ significantly increases growth characters, yield and also improved quality of tomato whereas NAA application increased total soluble solid percentage significantly (Pundir and Yadav, 2001). Fruit set in tomato was successfully improved by application of plant growth regulators and micronutrients. In fact the use of growth regulators had improved the production of tomato including other vegetables in respect of better growth and quality (Saha, 2009). This ultimately led to generate interest between the scientists and farmers for commercial application of growth regulators and micronutrients. So the present investigation was undertaken to find out the effect of different plant growth regulators on fruit characters and yield parameters in plant of tomato cv. GUJARAT TOMATO-3 (GT-3).

RESEARCH METHODS

The experiment was carried out at Horticultural Farm in