

Research Note

Effect of Bio-fertilizer and nitrogen on quality of tomato c v . GT-2

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Tomato is an important vegetable crop to grower, consumer and processing industry. It is known for its outstanding nutrient value, is second most commonly grown vegetable in India. The red pigment in tomato fruit lycopene is now being considered as the world's most powerful natural anti-oxidant. While very few attempts have been taken to standardize the nutritional requirement of tomato. Hence, the present experiment was carried out to fine out the influence of biofertilizer and nitrogen on tomato.

A field trial was conducted at the college farm, N.M. College of Agriculture, Navsari Agricultural University, Navsari during *Rabi* 2005-06. The soil of experimental field had a pH of 7.7; with available nitrogen 160 kg/ha, available phosphorus 40.02 kg/ha, available potash 384.05 kg/ha. The experiment was laid out in Randomized Block Design (RBD) replicated with various biofertilizer treatments with recommended dose of nitrogen. The data on days to 50 per cent flowering, diameter of fruit, fruit weight, no of fruits per plant, fruit yield, TSS, acidity and ascorbic acid (mg/100g) are presented in Table 1 after statistical analysis.

Minimum days to 50 per cent flowering (41.83) equally recorded in T₃ and T₉. It may be due to extended vegetative phase of the plant, by availability of higher inorganic nitrogen (Renuka and Sanker, 2001).

Maximum value of polar and equatorial diameter of fruit (5.42 and 15.75

cm), respectively was found in T₁₀ which at par with T₁₁. It might be due to biofertilizer produce growth promoting substances, viz., auxin, GA₃ and cytokinin, which contribute in increasing the diameter (Pandey and Kumar, 1989).

Maximum fruit weight was recorded in T₁₁. It might be due to *Azotobactor*, *Azospirillum* effects in N₂ fixation and synthesized plant growth substances which promote the hormone and protein, enzymes and other factors that improve uptake of essential nutrients by plants (Pandey and Kumar, 1989).

T₁₀ gave maximum fruit yield per plant and per hectares which was at par with T₁₁. The possible reason for fruit yield might be associated to better inorganic nitrogen utilization in the presence of bio-fertilizers, which enhanced biological N₂ fixation for better development of root system and possible higher synthesis of plant growth hormones (Gajbhiye *et al.*, 2003).

TSS was found non-significant but positive trend was found in T₁₀. Minimum acidity (0.36) found in T₈ which was at par with T₁₀ and maximum ascorbic acid (32.67%) recorded in T₁₀ which was at par with T₁₁. Biofertilizers enhanced the photosynthetic and metabolic activities resulting in the synthesis of higher amount of acids, metabolites and glucose. The produced reserves may contribute to synthesis of TSS, acidity and ascorbic acid (Kumaran *et al.*, 2009).

KEY WORDS :

Biofertilizer, Nitrogen,
Tomato