

Efficacy of plant growth regulators on quality characters and yield attributes in tomato (*Lycopersicon esculentum* Mill.) cv. Abhishek

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ABSTRACT : This study was conducted with the objective to determine the effects of Gibberellic acid (GA₃), naphthalene acetic acid (NAA) and 2,4-dichlorophenoxyacetic acid (2,4-D) and their combinations on fruit yield and quality of tomato. The experiment consisted of one tomato variety- Abhishek, and nine treatments with three levels of gibberellic acid (GA₃- 10 ppm, 30 ppm and 50 ppm), two levels of naphthalene acetic acid (NAA- 20 ppm and 50 ppm) and two levels of 2,4-dichlorophenoxyacetic acid (2,4-D- 1 ppm and 2 ppm) and their combinations (10 ppm GA₃, 20 ppm NAA and 1 ppm 2,4-D) arranged in randomized block design with three replications. The highest plant height, Number of leaves has been observed and ascorbic acid, total soluble solid (TSS) and lycopene was estimated for GA₃ 50 ppm, followed by combination of GA₃ @ 10 ppm, NAA @ 20 ppm and 1 ppm of 2,4-D. Maximum flowering and fruiting per plant and Fresh fruits weight were achieved by the treatment with NAA 50 ppm, followed by combination of GA₃ @ 10 ppm, NAA @ 20 ppm and 1 ppm of 2,4-D. Chlorophyll content were achieved by the treatment with 2,4-D @ 2 ppm, followed by combination of GA₃ @ 10 ppm, NAA @ 20 ppm and 1 ppm of 2,4-D. Based on the results, it can be concluded that combined application of GA₃, NAA and 2,4-D @ 10 ppm, 20 ppm and 1 ppm of 2,4-D had positive effect on plant growth, flowering, quality and yield potential.

Key Words: Gibberellic acid, Naphthalene acetic acid, 2, 4-dichlorophenoxy acetic acid, tomato, *Lycopersicon esculentum* Mill, fruit yield, quality.