

ROLE OF VERICOMPOST ON GROWTH AND YIELD OF TOMATO (*Solanum lycopersicum* L.) UNDER SALT STRESS

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Executive Summary

Globally salinity is unquestionably one of the major limitations hampering plant growth and development. Saline area is expanding day by day throughout the world including Bangladesh. Therefore, it is very urgent task to explore the technology of growing crops in the saline prone area by using modern agricultural or crop management techniques. Keeping in view the increasing salinity concerns and global importance of tomato crop, this study was designed to explore the role of vermicompost in alleviating salt stress in tomato plant. A pot experiment was conducted at the Agroforestry Field Laboratory in Sher-e-Bangla Agricultural University, Dhaka, Bangladesh during the period of November 2022 to April 2023 following completely randomized design with three replications. Study comprises two factors: four levels of vermicompost ($V_0 = 0\%$, $V_1 = 5\%$, $V_2 = 10\%$, $V_3 = 15\%$ vermicompost pot^{-1}) and four levels of salinity ($S_0 = 0 \text{ mM}$; $S_1 = 50 \text{ mM}$; $S_2 = 100 \text{ mM}$ and $S_3 = 150 \text{ mM}$ NaCl). Salt in pot soil decreased almost all the growth, physiological and yield parameters of tested tomato variety in dose dependent manner. The yield of tomato was 1.358, 1.126, 0.801 and 0.536 kg pot^{-1} under V_0S_0 , V_0S_1 , V_0S_2 and V_0S_3 treatment, respectively. The maximum reduction of yield was observed in V_0S_3 treatment which is 60.5% lowered in contrast to control treatment. On the other hand addition of vermicompost in pot soil increased growth and yield of tomato in non-saline condition. Interestingly, it also improved most of the observed parameters of tomato including yield per pot under saline condition. Under all stress level best performance of vermicompost was recorded at V_3 followed by V_2 and V_1 . So, vermicompost might be used in saline prone area for alleviating salt stress in tomato plant.

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