

## **ASSESSMENT OF GENETIC DIVERSITY AND SELECTION OF SUPERIOR TYPES OF TOMATO GENOTYPES UNDER DROUGHT STRESS**

**Dr. Shahanaz Parveen\***

### **Executive Summary**

A pot experiment was conducted in the net house of the Department of Genetics and Plant Breeding, Sher-e-Bangla Agricultural University, Dhaka during November 2018 to March 2019 to observe the genotypic differences among the tomato genotypes under drought treatments. Two factorial experiments including ten tomato genotypes *viz.* G1 (local variety), G2 (BARI Tomato 16), G3 (BARI Tomato 3), G4 (BARI Tomato 15), G5 (BARI Tomato 2), G6 (BARI Tomato 18), G7 (BARI Tomato 19), G8 (BARI Tomato 14), G9 (BARI Tomato 11), G10 (ROMA VF), and three drought treatments, T<sub>1</sub> (Control), T<sub>2</sub> (15 days withholding of water) and T<sub>3</sub> (35 days withholding of water) were outlined in completely randomized design with three replications. The results showed that both the tomato genotypes and drought treatments had significant influence independently and dependently on agromorphogenic, physiological, antioxidant and nutritional traits of tomato plant. Almost all traits responded negatively as the drought level increased except days to first flowering, maturity, proline and brix (%). Regarding yield performance G4 showed tolerance at moderate drought stress and G6 at severe drought stress. Considering the yield and yield contributing characters, genotype G4, G5 and G6 showed tolerance at moderate drought stress and G7, G13 and G6 showed tolerance at prolonged and severe drought stress. Regarding antioxidant and nutritional traits, G5 for brix (%), G2 for vitamin-C content and G3 for lycopene content showed tolerance at moderate drought stress period and G5, G8 and G13 for prolonged and severe drought stress. These genotypes could be recommended to the farmers for cultivation in the drought prone areas of Bangladesh and also could be used in future hybridization or other gene transfer programs.

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\* Associate Professor, Dept. of Genetics and Plant Breeding, Sher-e-Bangla Agricultural University, Dhaka-1207