



ID: 633

## Nutrition-Focused Evaluation of Tomato Lines for Sustainable Food Systems In Bangladesh

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### Abstract

An evaluation trial was conducted on new tomato lines to study their yield, pest and disease resistance, quality attributes, and potential nutritional contributions at the experimental field of the Olericulture Division, Horticulture Research Centre (HRC), Bangladesh Agricultural Research Institute (BARI), Gazipur, during the winter season of 2023-24. Fruit yield varied significantly, ranging from 15.7 to 150.4 t/ha. The highest yields were obtained from the lines SLA 035 (150.40 t/ha), SLA 031 (126.54 t/ha), SLA 039 (107.23 t/ha), SLA 040 (111.33 t/ha), SLA 044 (98.91 t/ha), SLA 041 (87.40 t/ha), SLA 045 (86.16 t/ha), SLA 030 (84.70 t/ha), and SLA 043 (80.79 t/ha). These lines also demonstrated promising traits in terms of earliness, quantitative and qualitative characteristics, as well as resistance to late blight, TYLCV, bacterial wilt, leaf miner, and fruit borer infestations. Given Bangladesh's high prevalence of micronutrient deficiencies, particularly vitamin A and C, tomatoes serve as an important dietary source of antioxidants, vitamins, and minerals. The selected high-yielding and disease-resistant lines could enhance tomato production, ensuring better availability and affordability of nutrient-rich vegetables for the population. Further evaluation of their nutritional profiles, including lycopene,  $\beta$ -carotene, and ascorbic acid content, would be beneficial to confirm their potential in addressing malnutrition. These nine promising lines—SLA 035, SLA 031, SLA 039, SLA 040, SLA 044, SLA 041, SLA 045, SLA 030, and SLA 043—are recommended for further confirmation and potential release to improve both food security and nutritional outcomes in Bangladesh.

