

ID: 644

Selection of High-Yielding Watermelon Lines for Enhanced Food and Nutritional Security in Bangladesh

AKM QUAMRUZZAMAN*, L. AKTER, MR ISLAM, S. AKTER and MH ISLAM

Olericulture Division, Horticulture Research Centre, Bangladesh Agricultural Research Institute, Gazipur-1701, Bangladesh

*Corresponding Email: akmqzs@gmail.com

Abstract

This study evaluated 10 watermelon germplasm lines alongside check variety (BARI Tarmuj-1) at the Olericulture Division of HRC, BARI, Gazipur during February-May 2024 to identify superior genotypes for farmers' cultivation. Significant variations were observed in key agronomic and quality parameters among the tested lines. Vine length ranged from 4.0-5.10 m, while critical fruit quality traits showed substantial variation: flesh thickness (13.0-31.0 cm), rind thickness (1.7-2.5 cm), and total soluble solids (TSS) content (10.50-13.60%). Fruit yield per plant varied considerably (11.85-18.49 kg), with five promising lines outperforming the check variety: CL009D (18.49 kg), CL009B (18.36 kg), CL009C (18.10 kg), CL009A (17.32 kg), and CL008 (17.24 kg). The selected lines combine high yield potential with superior quality attributes, particularly the optimal flesh-to-rind ratio and elevated TSS content (>13%), indicating enhanced sweetness and nutritional value. These characteristics make them ideal for both fresh consumption and processing, addressing Bangladesh's growing demand for nutrient-dense fruits. The identification of these high-performing genotypes provides valuable breeding material for developing improved watermelon varieties that can boost productivity by 25-35% compared to existing varieties. This research contributes directly to food and nutritional security by offering farmers access to superior genetic material with better yield stability and quality. The selected lines demonstrate potential for climate resilience and market preference, aligning with national agricultural development goals. Further multilocation trials are recommended to validate performance across different agroecological zones before official release.

Keywords: Watermelon breeding, germplasm evaluation, fruit quality, yield improvement, nutritional security, Bangladesh.

