

Evaluation of Darjeeling Mandarin based on Morphological and Physiochemical Attributes

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Abstract—Darjeeling mandarin is one of the major cash crops of Darjeeling hills. But, in the recent past productivity of Darjeeling mandarin have decreased due to various abiotic and abiotic stresses. Therefore, there is a strong need for the supply of disease free elites planting material. Keeping in view, a series of survey were conducted in different parts of Darjeeling hills to identify superior genotypes of Darjeeling mandarin. Fruits were collected and analyzed for their fruit quality on the basis of morphological and biochemical parameters like, total phenol, antioxidant activity, total flavonoids, protein, ascorbic acid, titrable acidity and TSS. Among the 37 genotypes surveyed, TSS was found to be the highest in DK-1 (13.3 °B) and lowest in SN-1 (8.58 °B). Ascorbic acid varied from 180 mg/100 ml (SN-2) to 50 mg/ml (YK-7). Higher DPPH activity was observed in DS-2 (2.08%) while lowest activity was observed in SN-2 (0.82 %). Total phenolics content was observed to be the highest in SN-2 (81.42 mg GAE/100 ml juice) while lowest in DR-1 (40.98 µg GAE/ml juice). Total flavonoids content was found highest in Y-2 (298.6 µg RE/ml juice) and minimum content was recorded in PR-2 (72.0 µg RE/ml juice).

Keywords: Darjeeling Mandarin, Fruit Quality, Total soluble solids (TSS), Ascorbic Acid, Flavonoids.