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Profiling of major biochemical compounds for identification of nutritionally rich genotypes in mango

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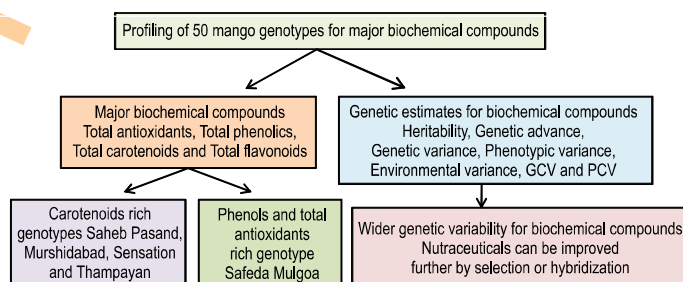
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Abstract

Aim : Mango is a major fruit crop grown in India with wide variability for fruit colour, size, shape and fruit quality. The main objective of this study was profiling of mango genotypes and their genetic estimates for major biochemical compounds to identify superior genotypes as parents for developing nutritionally rich hybrids in future.

Methodology : Fifty mango varieties were analysed for biochemical compounds such as total antioxidants, total phenols, total flavonoids and total carotenoids. The L*, a*, b* values were recorded for pulp colour, and genetic estimates were also worked for genetic parameters such as genotypic variance, phenotypic variance, GCV, PCV, heritability and genetic advance. Correlation matrix for major biochemical compounds and L*, a*, b* values were also calculated.

Results : The present study revealed the presence of wide genetic variability in mango gene pool for biochemical compounds and pulp colour. The total phenolics ranged from 24.44 to 148.33 mg 100g⁻¹ of pulp, total flavonoids 10.33-49 mg 100g⁻¹, total carotenoids 0.48-7.50 mg 100g⁻¹ and total antioxidants 0.14-1.59 µmol Trolox 100g⁻¹ of pulp. The future genetic estimates showed that the phenotypic coefficient of variation (PCV) for all the characters was slightly higher than genotypic coefficient of variation (GCV), indicating the presence of environmental influence to some degree in the phenotypic expression of characters. However, the difference between PCV and GCV for all the traits was narrow suggesting that the traits were less influenced by environment. The broad sense heritability (H²) for all the compounds was high which indicates the phenotype of that trait strongly reflects its genotype.



Interpretation : High values of PCV, GCV and heritability for total antioxidants, total phenols, total flavonoids and total carotenoids indicated high genetic variability and better scope for selection and improvement through hybridization.

Key words: Biochemical compounds, Genetic advance, Heritability, *Mangifera indica*, Superior parents

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