

# Comparison of coefficients and distance measurements in passion fruit plants based on molecular markers and physicochemical descriptors

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**ABSTRACT.** We investigated seven distance measures and 14 similarity coefficients in a set of observations of variables of the 'yellow' passion fruit plant (*Passiflora edulis* Sims), submitted to multivariate analyses (distance, projection and grouping). Fourteen genotypes were characterized, based on DNA amplification with 16 random amplified polymorphic DNA primers and the assessment of nine fruit physical-chemical descriptors. The distance measurements and the similarity coefficients were compared by the Spearman correlation test, projection in two-dimensional space and grouping efficiency, using five grouping methods; the genotype ranking varied with the different techniques. Coler-Rodger distance measures, Euclidean distance square measures and Yule similarity coefficients proved to be inadequate for projection in two-dimensional space or for group-

ing matrices. Regardless of the origin of the distance matrix, the unweighted pair group method with arithmetic mean grouping method proved to be the most adequate. The various distance measurements, similarity coefficients and grouping methods gave different values of distortion, cophenetic correlation and stress; they influence the characterization of genetic variability and this should be taken into account for studies of yellow passion fruit plants.

**Key words:** Grouping analysis; Multivariate statistics; Genetic divergence; *Passiflora edulis* Sims