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Comparison of maize similarity and dissimilarity genetic coefficients based on microsatellite markers

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ABSTRACT. The present study compared different similarity and dissimilarity coefficients and their influence in maize inbred line clustering. Ninety maize $S_{0:1}$ inbred lines were used and genotyped with 25 microsatellite markers (simple sequence repeat). The simple matching, Rogers and Tanimoto, Russel and Rao, Hamann, Jaccard, Sorensen-Dice, Ochiai, and Roger's modified distance coefficients were compared by consensus index, projection efficiency in a two-dimensional space and by Spearman's correlation. Changes were found in high genetic similarity groupings with different coefficients using the consensus index. Russel and Rao and Jaccard coefficients had the greatest stress values with 75.67 and 40.16%, respectively, indicating that these coefficients should not be used. Genotype ranking changed, mainly in the comparison of the Roger's modified distance in relation to some coefficients ($r_s = 0.75$). Russel and Rao's and Jaccard's coefficients should be avoided for their low accuracy. Moreover, genotype clustering by different similarly coefficients, without a close consideration of these coefficients could affect the research results.

Key words: Genetic divergence; Cluster analysis; Heterotic groups

