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Genetic variability in domesticated *Capsicum* spp as assessed by morphological and agronomic data in mixed statistical analysis

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ABSTRACT: *Capsicum* species are very important in Brazil because of economic, cultural and biological factors, and the country is considered to be a diversity center for this genus. Collection and maintenance of the genetic diversity in *Capsicum* are important to avoid genetic erosion. Besides the identification of species, the characterization and evaluation of accessions maintained in gene banks are of fundamental importance. For this purpose, multivariate methods have become an important tool in the classification of conserved genotypes. The objectives of this study were: i) to identify and characterize accessions of the *Capsicum* spp collection and draw conclusions about the potential use of certain accessions in different production sectors; ii) to estimate the genetic divergence among accessions using the Ward-MLM procedure, and iii) to evaluate the

efficiency of the analysis of continuous and categorical data using the Ward-MLM procedure. Fifty-six *Capsicum* spp accessions were evaluated based on 25 descriptors, 14 of which were morphological and 11 agronomic. Based on the qualitative descriptors, it was possible to identify all species and, together with the agronomic descriptors, genotypes could be indicated with potential for use in various production sectors. Five was determined as the ideal number of groups by the criteria pseudo-F and pseudo-t^2. The Ward-MLM procedure allowed the differentiation of the species *C. annuum*, *C. frutescens*, *C. baccatum*, and *C. chinense* in separate groups. The Ward-MLM procedure showed some level of efficiency in clustering *Capsicum* species analyzing morphological and agronomic data simultaneously.

Key words: Germplasm characterization; Plant descriptors; Categorical variables; Quantitative data; Ward-MLM procedure

