

SUMMARY

Morphological diversity of collections of Chile Manzano (*Capsicum pubescens* Ruíz & Pav.) Of the state of Veracruz, Mexico

The Manzano hot pepper (*Capsicum pubescens* Ruíz and Pav.) is cultivated mainly in temperate regions, has genetic diversity created by the genetic flow of the farmers, that can be used in programs of genetic improvement. Therefore, the objective of the present research work was to evaluate the agronomic behavior of 28 Manzano hot pepper collections in three locations in the high Mountains region of the state of Veracruz. The trials were established in the municipalities of Tepatlaxco (A), Coscomatepec (B) and Tequila (C) during the months of January to December 2018. Agronomic management was homogeneous in all three environments. Bioclimatic variables were recorded; temperature and rainfall; as well as plant and fruit morphological traits such as: plant height (cm), fruit performance (FPER kg ha⁻¹), fruit length (FLEN mm), fruit width (FWID mm), number of locules (NLOC), pericarp thickness (PTHI mm), placenta length, number of seeds, number of buttons, flowers and fruits. The results indicated that the temperature was similar in the three environments with a small variation in A3 at the end of the production cycle; however, they remain in the optimal ranges for crop development. The total rainfall in A1, A2 and A3 was 1946, 2015 and 2094.8 mm, respectively. The MEXUVTE1 collection was the highest in A1 and A2; however, for A3 the MEXUVBV1 and MEXUVCU1 collections were the highest. According to descriptive analysis, the FPER traits presented a high coefficient of variation; while, the variables FLEN and NLOC were the most stable. In the principal component analysis, the first three components managed to explain 69% of the total variation. The variables NBUT, NFLO and NFRU were associated more with PC1, AFW and FWID with PC2 and FPER and leaves number with PC3. The AMMI model managed to separate the additive and interaction effects and identified the collections MEXUVTE1, MEXUVBV1, MEXUVCV1, MEXUVCV2, MEXUVHU1, MEXUVNE1 and MEXUVCU1, as the most stable. According to the results obtained, the three evaluation environments presented suitable climatic conditions for cultivation of Manzano hot pepper. However, accumulated precipitation is a factor that promotes the development of diseases, limiting their productive potential. According to growth kinetics, growth habits between collections and their classification were identified. The statistical methods used were able to identify the morphological variability existing in the species, which can be used in a genetic improvement program.

Key words: *Capsicum pubescens*, collections, AMMI model, morphological descriptors.