

## SUMMARY

### **Morphological characterization and ecogeography of chile cera (*Capsicum pubescens* R. and P.)**

Chili (*Capsicum* spp.) is one of the most important horticultural crops due to its pungency and nutritional value. Heterogeneity, diversity of climates and selection of farmers for local adaptation of cultivars, have favored the maintenance of numerous species of chili peppers (*Capsicum* spp.) in Mexico. The objective of this research work was to study the morphological diversity in the wax fruit (*Capsicum pubescens* R. and P.) through population descriptors in two geographically contrasting zones of central Veracruz State. With the means of each variable per collection, a principal components analysis (PCA) was carried out including 22 collections and 8 variables, which were standardized to  $\mu = 0$  and  $\sigma^2 = 1$ . The estimation of the main components was made with a correlation matrix. From the correlation matrix, a cluster analysis was performed by the Ward method. With qualitative variables of the fruit, a contingency table of 2 x 2 was made to analyse if the qualitative morphological character is associated to the geographical environmental region; this analysis was carried out using the  $X^2$  test. The potential distribution of the species was calculated using an inductive approach. A map of potential distribution for the species was obtained through the MaxEnt software. In this software, the geolocations of the 22 collections and 19 climate and soil variables taken from the WorldClim database were used. The model of potential distribution was validated with an AUC of 0.992, the best conditions of occurrence are higher in the mountainous zones of the states of Chiapas, Oaxaca, Puebla, Veracruz, Hidalgo and the State of Mexico that were influenced by the precipitation of the drier month, altitude and presence of potassium (K). The ACP of 19 morphological characteristics showed that the first three components were selected as the main factors. These components explained 77.9% of the total variation. The cluster analysis yielded six groups or population patterns that were differentiated mainly by ecogeographic conditions and by type of fruit. The present study shows the potential of native germplasm that has been little studied, and gives guidelines to establish strategies for breeding programs.

**Key words:** *Capsicum pubescens*, native populations, morphological characterization.