SUMMARY

Morphological characterization and potential distribution of cassava accessions (*Manihot esculenta* Crantz)

With the objective to realize the morphological characterization, actual and potential distribution of 40 accessions of cassava (*Manihot esculenta* Crantz), from the state of Chiapas, sheltered *ex situ* in the Yuca Germplasm Bank (BGY) on the experimental station of Cotaxtla, Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias (INIFAP) in Medellín de Bravo Ver., 48 morphological descriptors (33 qualitative and quantitative 15) proposed on the characterization of the cassava manual by Fukuda et al., were used. Using descriptive statistics, it was determined that the qualitative descriptors with higher variability were: length and width of the central lobe of leaf, length and color of petiole, color of the outer surface of mature stem, extension root stalk, shape and color of root bark. With multivariate statistics and the use of principal component analysis using the statistical package SAS/ STAT ® v9.0, it was determined that the first four components explained the 68,977% for the variation of the quantitative descriptors. Through CP2 and CP1, a two-dimensional graph showed all the 40 accessions and 15 vectors representing the original variables. It corroborated that: length and width of leaf lobe, length of petiole, number of storage roots and number of commercial roots, are the vectors with highest variability among accessions. Cluster analysis obtained with the statistical software INFOSTAT 2016e, showed six groups of accessions, within which highlighted materials with high solids content (>35 %) and starch content, classified as quality parameters. The results showed the existence of significant variability that contributes to promote the use of indigenous biodiversity and promote conservation of the species; also, this information could be used as a reference for genetic improvement. In adition, with the latitude and longitude data of the 40 collection sites captured in Google Earth®, a map of actual distribution for cassava at Chiapas state was generated. On the other hand, a map for potential distribution modeled with the software by Maxent v3.3.1 was developed. It was obteined a value of area under the curve (AUC) of 96.7 % for *M. esculenta*. This indicates that the generated model is better than those made at random. The results indicate the presence of cassava in the states of Tabasco, Veracruz, Chiapas, Oaxaca, Guerrero, Jalisco, Nayarit and Colima. With regard to favorable environmental conditions for the species, temperature, evapotranspiration and precipitation of the wettest months play a major role. For Mexico, a potential area of 8,365,520 ha^{-1} was estimated. These results give guidelines for future collections, as well as for farmers who wish to adopt and exploit the crop.

Key words: *Manihot esculenta*, characterization, variability, accessions, distribution.