SUMMARY

CURRENT AND POTENTIAL DISTRIBUTION OF *Manduca sexta sexta* (Linnaeus, 1763) IN MEXICO

Sphingidae or hawkmoths are a group of Lepidoptera that are considered important to horticulture because their benefic role as pollinators. However, at least 15 genera comprise species that are pest for crops such as grape, potato, tomato and tobacco. The tobacco hornworm (*Manduca sexta sexta* Linaeus,1763) is included in this category. Even when this subspecies have been subject of extensive research, information related with its distribution is scarse. This topic is very important due to the fact that the identification of idoneous enviromental conditions for this subespecies would help to identify potential areas that could be occupied by this pest. In order to generate this kind of information, localities, high resolution climatic, elevation and biotic data were used. Maximum Entropy Modeling (MaxEnt) in order to generate suitability maps was used. Results showed that *M. sexta sexta* is widely distributed in Mexico under high diverse environmental conditions, but usually it is present in tropical and subtropical broadleaf forest of Neotropics with humid and subhumid warm climates. However, in some cases it is able to withstand arid conditions. Data suggest that in Mexico there are two groups which have developed under contrasting enviromental conditions. A Neotropical group, which includes most of collecting localities, develop under warm or semiwarm conditions where temperature oscillations are not high. In contrast a Neartic group faces more extreme temperature conditions. Regardless the group, data suggest that the rain distribution during the year plays regulatory role in the distribution of *M. sexta sexta*. MaxEnt maps showed that, in the Neotropical region, the more suitable areas are located mainly in Eastern Mexico while the Neartic group is present in northwestern Mexico.

Key words: Sphingidae, *Manduca sexta sexta* , Maximum Entropy Modeling, Geographic didtribution