



Morphometric and genetic changes in a population of *Apis mellifera* after 34 years of Africanization

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ABSTRACT. Though the replacement of European bees by Africanized honey bees in tropical America has attracted considerable attention, little is known about the temporal changes in morphological and genetic characteristics in these bee populations. We examined the changes in the morphometric and genetic profiles of an Africanized honey bee population collected near where the original African swarms escaped, after 34 years of Africanization. Workers from colonies sampled in 1968 and in 2002 were morphometrically analyzed using relative warps analysis and an Automatic Bee Identification System (ABIS). All the colonies had

their mitochondrial DNA identified. The subspecies that mixed to form the Africanized honey bees were used as a comparison for the morphometric analysis. The two morphometric approaches showed great similarity of Africanized bees with the African subspecies, *Apis mellifera scutellata*, corroborating with other markers. We also found the population of 1968 to have the pattern of wing venation to be more similar to *A. m. scutellata* than the current population. The mitochondrial DNA of European origin, which was very common in the 1968 population, was not found in the current population, indicating selective pressure replacing the European with the African genome in this tropical region. Both morphometric methodologies were very effective in discriminating the *A. mellifera* groups; the non-linear analysis of ABIS was the most successful in identifying the bees, with more than 94% correct classifications.

Key words: *Apis mellifera*; Species identification; Wing morphometrics; Biodiversity; mtDNA; Geometric morphometrics