

# 15 years of change in population structure of honey bees (*Apis mellifera*) in Turkey: a comparison of migratory vs. stationary apiaries and isolated vs. not isolated regions

## ABSTRACT

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Recent reports from Spain, Italy and Greece point to an intense admixture of honey bee populations in those countries signified with a loss of population structure. This is mostly attributed to migratory beekeeping practices and replacement of queens or colonies with commercial ones that are usually non-native or hybrids of different subspecies. These two practices are also heavily carried out in Turkey where almost three-quarters of the 6 million colonies are transferred seasonally from one region to other.

Studies of population structure based on microsatellite markers –as well as RAPD markers, allozymes and geometric morphometry- were carried out during the last fifteen years in our laboratory. Five different subspecies of *Apis mellifera* (*A. m. meda*, *A. m. syriaca*, *A. m. caucasica*, *A. m. anatoliaca* and *A. m. macedonica*) are considered to be native to Anatolia and Thrace. We carried out an analysis of population structure of honeybees in Turkey sampled from six different regions in the last two years. 29 microsatellite markers were used in 4 multiplex reactions. The results show that population structure is conserved in general although there are signs of gene flow.

We have further tested the effect of migratory beekeeping based on comparison of assignment probabilities to their geographic populations of individuals from migratory and stationary colonies. Also a comparison is made between regions that are open to migratory beekeeping and not -isolated regions where migratory beekeeping is prohibited or not taking place or very low.