

LOCAL DIFFERENTIATION OF ALBANIAN HONEYBEE POPULATIONS DURING DIFFERENT PERIODS

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Abstract

Evaluating changes in phenotypic variances of 12 forewing traits that may have occurred during certain periods of time, one can judge for the genetic interventions that may have been made in the Albanian bee population. That's why the aim of this study was evaluation of local differentiation for bees in the Albanian population, occurring during different periods (1996 - 2012).

In this study, 12 morphological characteristics (Cubital index and 11 angles between the coordinates of 18 vein junctions of forewings) were measured on 3,600 worker bees sampled from twenty different districts covering the territory of Albania. The measurement of 11 angles on the front wing and cubital index was done using scan photo technique which consist on a combination between a scanner and photoshop program, in accordance with the standard method. Statgraphic Centurion IX software was used to make statistical analysis of data.

Comparison of averages for morphological traits evaluated in 1996 and in 2011 - 2012 evident statistically significant differences for angles D7, G18, J10 and N23. Comparison of values of coefficient variation, for all the studied traits indicates that for each trait, values of this coefficient currently are larger than those evaluated about fifteen years ago. The increase of values of coefficient variation is an indicator which shows that during the last fifteen years, in the Albanian bee population, interventions have been made. Multivariate discriminate analysis has identified small differences between different groups of bees inside the domestic population, but the distances between them are not following the geographic distances between their locations.

Taking into account, both, the differences between levels of differentiation in the Albanian local bee population estimated in different based on forewing traits, and variations within and between groups of bees, can be concluded that the human activities, like introduction of other honey bee subspecies into different geographic areas, has produced a high level of the admixtures in Albanian bee population. We suggest the development of monitoring policies of imported genes from neighboring countries.

Key words: Honey bee, Morphometry, Angles, Albanian bee differentiation.