

ESTIMATION OF 14 MORPHOLOGICAL TRAITS OF HONEY BEES IN TROPOJA DISTRICT AND THEIR CORRELATION WITH HONEY PRODUCTION

Manjola Kuliçi^{1*}, Lejla Shehu²

¹Faculty of Biotechnology and Food, Agricultural University of Tirana, P. Vodica Street nn, 1030 Kamez - Tirana, Albania

²Albanian Beekeeping Association, Halim Xhelo 6, 1001 Tirana, Albania

*e-mail: manjola.kulici@yahoo.com

Abstract

Morphometry is a very widespread and effective discipline for the study of the western honeybee *Apis mellifera*. The aim of this investigation was the quantitative evaluation of morphological characters for *Apis mellifera carnica* in Tropoja district and their correlation with honey production, since the correlation between traits is of great importance for their improvement.

In this study 14 morphological traits of bees sampled from 4 different location (Markaj, Vicidol, Qafe Morine, Luzhe) in Tropoja district were measured and their values were correlated with honey production. The morphometric measurement was carried out using a simple technique depends on the combination between Scanner and Photoshop program, Scan Photo Technique (Abo-Shara, 2012). According to this method the worker bees were dissected and the separated parts were scanned using a scanner, then the images of the morphological characters were measured with Photoshop program. Statistical analysis of data was performed with programs Statistics 7 and Excel.

The average values of the measured parameters were: proboscis length (PL) (6.48 mm), forewing length (FWL) (9.32 mm), forewing width (FWW) (3.08 mm), cubital index (CI) (2.33), hind wing length (HWL) (6.397 mm), hind wing width (HWW) (1.8 mm), femur length (FL) (2.34 mm), tibia length (TL) (3.2 mm), basitarsus length (BL) (2.026 mm), basitarsus width (BW) (1.245 mm), sternite 3 longitudinal (S3) (2.756 mm), wax mirror of sternite 3 longitudinal (WL) (1.35 mm), wax mirror of sternite 3 transversal (WT) (2.338 mm), and distance between wax mirrors of sternite 3(WD) (0.3 mm). Referring to values of coefficient of variation, features can be classified into two groups: (i) PL, FWL, FWW, HWL, HWW, FL, TL, BL, BW, S3, WL, WT features with low level of variation (1.37 - 8.4%); (2) CI, and WD, and features with high level of variation (12.2% - 29.95%). Our result show that proboscis (PL) and forewing length (FWL) had the highest correlation with honey production ($r = 0.4017$, $r = 0.407$ $P > 0.05$).

We suggest extending of the study in other districts as well, and also we suggest the study of correlation of other morphometric traits with honey production.

Key words: *Apis mellifera*, Morphometric traits, Honey production.