

Morphometric Differentiation Of *Apis Mellifera Iberiensis* In The Balearic Islands

Jesús Yániz¹, Ernesto Angel-Beamonte¹, Irene Muñoz², Pilar De la Rúa², Pablo Espejo³, Pilar Santolaria¹

¹University of Zaragoza, Huesca, Spain. ²Universidad de Murcia, Murcia, Spain

³Grup Balear de Crià i Selecció Dotze Reines, Mallorca, Spain



1. Introduction

The preservation of subspecies and ecotypes of *Apis mellifera* is important since they are better attuned to local flowering patterns, climatic variation and locally prevalent beekeeping methods. Honey bees of local origin also represent highly valuable biological capital for future selection in response to new ecological and production challenges. This study was designed to study the morphometric differentiation of *Apis mellifera iberiensis* in the Balearic Islands when compared to those in the Iberian Peninsula.

4. Figures and tables



Fig. 1. Scatter plot of *A. m. iberiensis* in the different geographical locations studied based on CVA for Cartesian coordinates of the landmarks on the right forewing discrimination of individual bees.

2. Materials and Methods

Samples of 2970 workers were collected from 2000 to 2021 in 312 colonies distributed in the Iberian Peninsula (33 apiaries, 171 colonies, 1375 workers) and in the four Balearic Islands (31 apiaries, 141 colonies, 1595 workers). Wing images, obtained using a Leica optical microscope or a Smartphone, were processed with the WingMarks2 automatic software to obtain the subspecies classification and landmarks coordinates. These coordinates were subsequently processed in MorphoJ package.

5. Conclusion

It was concluded that the honey bee in the Balearic Islands show a morphometric differentiation when compared to those in the Iberian Peninsula, and this may indicate the existence of a new ecotype of *A. m. iberiensis*.

3. Results and Discussion

Results showed a morphometric differentiation of the *A. m. iberiensis* in the Balearic Islands when compared to those of the Iberian Peninsula. Cross-validation tests based on discriminant function correctly classified 100% of the colonies and 97.0% of honey bees.

6. Acknowledgements / References

This work was supported by the Spanish AEI-MICINN (grant PID2020-112673RB-I00), the DGA-FSE (grants PRO-SOBRARBE and A07_17R), and the Serveis de Millora Agrària i Pesquera (SEMILLA, Govern de les Illes Balears). I. Muñoz is supported by a MINECO Spanish postdoctoral grant "Juan de la Cierva-Incorporación" (JCI2018-036614-I).