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Abstract book



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Welcome

It is our sincere pleasure to welcome you on the EurBee 10 Congress in Tallinn, Estonia! The Congress is organized by the Estonian University of Life Sciences with assistance by Publicon OÜ.

EurBee is the event, where old and new friends get together to exchange the knowledge of novel scientific findings, associated with honeybees and other pollinators.

We encourage young researchers to meet the leading scientists on their field. Establishing networking and creating new connections is extremely important for sustainable bee research.

The City of Tallinn is the capital of Estonia. Tallinn's Hanseatic old town and nowadays modern architecture is a great mixture for every taste. We recommend you to discover the great Estonian flavors and the interesting culture that Tallinn offers you in abundance on every corner.

Looking further, Estonian nature with its forests, bogs and swamps is unique in the world – all the EurBee guests have the opportunity to experience its magic!

Experience magic – experience Estonia!

Sincerely Yours,

Risto Raimets

President of EurBee 10



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eurbee10@publicicon.ee

+372 5919 2019

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BODY WATER LOSS AS AN ADAPTIVE CAPACITY OF HONEY BEES TO CLIMATE CHANGE

Soledad Sagastume de Andrés¹, Giovanni Cilia², Banan Al Sagour³, Asmaa Anwer Eissa⁴, Fernando Doblado¹, Nizar Haddad⁵, Antonio Nanetti², Mariano Higes¹, Raquel Martín-Hernández¹

¹IRIAF- Instituto Regional de Investigación y Desarrollo Agroalimentario y Forestal de Castilla-La Mancha, Centro de Investigación apícola y agroambiental (CIAPA), Marchamalo, Spain

²CREA-Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria, Bologna, Italy

³Bee Research Directorate, National Agricultural Research Center (NARC), Jordan

⁴ARC- Agricultural Research Center, Bee Research department, Giza, Egypt

⁵Bee Research Directorate, National Agricultural Research Center, Jordan

Abstract

Environmental temperature and relative humidity are important factors affecting honey bee welfare. The two variables are closely related and it has been observed that in bees, low RH levels combined with high temperature can exacerbate heat stress, while high humidity can reduce the severity of heat stress. Therefore, bees are able to regulate both temperature and humidity inside the hive by evaporating water from the nectar and regurgitating droplets of liquid to restore favourable conditions. One way to study this dehydration capacity is to calculate the body water loss (BWL) per bee before and after exposure to specific temperature and humidity conditions. In this work, 9 different conditions combining 35, 40 and 45°C temperature with 10, 25 and 50% RH were analysed. The same experiment has been carried out in Spain, Italy and Jordan with their corresponding subspecies (i.e. *Apis mellifera iberiensis*, *Apis mellifera ligustica* and *Apis mellifera syriaca*), and the results showed the protective effect of high RH under high temperature conditions. On the other hand, differences in dehydration capacity between subspecies have been found, which point to a different capacity to adapt to hot environments.

These results are under the project 2011-MEDIBEES, which is part of the PRIMA programme supported by the European Union.