



**BOOK OF ABSTRACTS**



**ECE 2023**  
**CRETE**  
European Congress of Entomology

**XII European Congress of Entomology**

16-20.10.2023

Cultural Conference Center of Heraklion  
Crete, Greece

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ΠΕΡΙΦΕΡΕΙΑ ΚΡΗΤΗΣ  
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ΤΕΧΝΙΚΟ ΕΠΙΜΕΛΗΤΗΡΙΟ  
ΚΡΗΤΗΣ

## Welcome Letter



Dear Colleagues,

On behalf of the Organizing Committee of the ECE 2023 and the Hellenic Entomological Society, we are delighted to welcome entomologists from around the globe to the XII European Congress of Entomology (ECE 2023), in Heraklion, Crete, on 16-20 October 2023.

Forty-five years after the first European Congress of Entomology in 1978 at Reading University, UK and following a series of successful congresses around Europe, we now have the great honor to host this major European entomological meeting in our beautiful country and with it the opportunity to share knowledge, expertise and perspectives.



The world of entomology faces many problems with the increasing threat of climate change, damaging vector-borne diseases, biodiversity loss and the need to feed an expanding world population. Our goal is to gather scientists from around the globe and provide a unique opportunity to exchange information and to communicate research results on a wide range of topics. The ECE 2023 audience consists of researchers and academics from a diverse range of entomology related fields, as well as policy-makers, field agronomists, crop protection experts, medical practitioners, engineers, social scientists and artists.

The congress program includes invited lectures from international experts, symposia, oral and poster sessions, workshops and satellite seminars. In addition, the congress is undoubtedly the ideal meeting place to network and interact, establishing the starting point for future collaborations and breakthrough innovations in entomology.

The historic, as well as magnificent island of Crete sets the ideal scenery for ECE 2023. The congress is hosted in the Cultural and Conference Center of Heraklion, a contemporary venue of international standards, offering high level services in an inspiring environment.

We strongly believe that we will deliver a high-quality meeting which will turn out to be a memorable experience. The success of the congress depends on the contributions of the delegates and we thank you for being actively involved.

Welcome at ECE Congress in Heraklion in 2023!

On behalf of the Organizing Committee

**Emmanouil Roditakis, Stefanos Andreadis**  
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general principles of size-related adaptations. We found that the number of structural units (sensilla and scolopidia) strongly depends on the body size, while size, structure and diversity of structural units demonstrates lesser correlation with the body size or does not correlate with at all. This work was supported by Non-commercial Foundation for the Advancement of Science and Education «INTELLECT».

**Keywords:** antenna, sensilla, miniaturization, Johnston's organ, 3D reconstruction, FIB-SEM

#### **P006. Evolution of pesticide resistance in seed beetles: transgenerational effects of sub-lethal pyrethroid concentration on morphology and development**

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Insecticide resistance is an example of rapid evolution under strong selection pressure and, is therefore of great importance for human and environmental health and economy. *Acanthoscelides obtectus* is a globally distributed Coleoptera pest that attacks bean seeds and degrades their quality. One method of protecting against seed beetles is the application of a widely used group of pesticides- pyrethroids. Insecticides, as xenobiotics, can induce stress in pests, leading to destabilization of their development and changes in their morphology. Fluctuating asymmetry (FA), small random deviations between right and left sides of bilateral symmetrical traits, is considered as a result of developmental instability and is thus a measurable indicator of phenotypic response to stress during morphogenesis in insects. In this work, we exposed four populations of *A. obtectus* to sub-lethal doses (LD<sub>20</sub>) of pyrethroid insecticide for five generations in a laboratory evolution experiment. To estimate the level of stress, we monitored the effects of the pesticide on shape changes and the level of FA using a geometric morphometric approach. Our results showed that beetles treated with LD<sub>20</sub> significantly changed their morphology in the thorax region, while the effect on the level of FA was minor. This work uses experimental evolution as a powerful tool to study pesticide resistance and paves the way for further studies on morphological adaptations, modularity and developmental stability under stress conditions.

**Keywords:** experimental evolution, *Acanthoscelides obtectus*, fluctuating asymmetry, developmental instability, pyrethroids