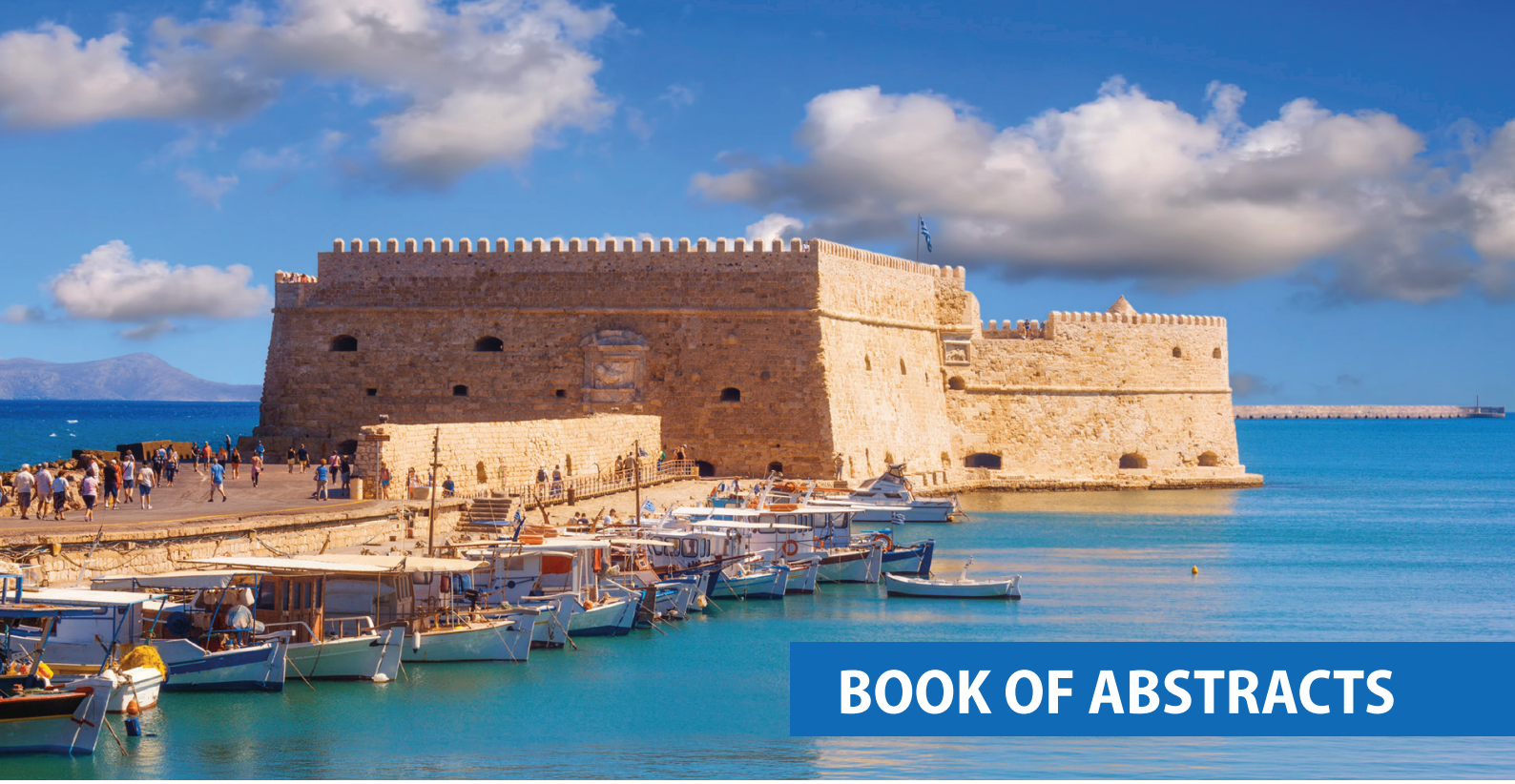

BOOK OF ABSTRACTS

ECE 2023 CRETE

European Congress of Entomology

XII European Congress of Entomology

16-20.10.2023

Cultural Conference Center of Heraklion

Crete, Greece

www.ece2023.com

Organised by

Hellenic Entomological Society 1979

Under the Auspices

HELLENIC REPUBLIC
Ministry of Rural Development and Food

HELLENIC REPUBLIC
MINISTRY OF TOURISM

ΠΕΡΙΦΕΡΕΙΑ ΚΡΗΤΗΣ
REGION OF CRETE

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ΤΕΕ/Τ.Ε. ΓΕΩΤΕΧΝΙΚΟ ΕΠΙΜΕΛΗΤΗΡΙΟ ΕΛΛΑΔΑΣ

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
ECE2023 Congress Chairs

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OC031. Mitochondrial genotype decreases mitochondrial respiration in seed beetles: implications for male subfertility

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Evolutionary theory suggests that inheritance of mitochondria through the maternal lineage could drive the accumulation of male-harming mutations in mitochondrial genomes. Namely, due to uniparental mode of mitochondrial inheritance, natural selection is "blind" to mutations that are deleterious to males as long as they are beneficial or neutral to females. This evolutionary phenomenon is known as 'the Mother's Curse'. The male-specific adverse effects of mitochondrial mutations are thought to be due to the fact that males are sensitive to impairments in the function of the oxidative phosphorylation (OXPHOS) system, i.e. mitochondrial respiration. The OXPHOS system consists of five complexes whose subunits are coded by the mitochondrial and nuclear genomes. In our previous work, we identified several mitochondrial haplotypes (mitotypes) in laboratory populations of the seed beetle (*Acanthoscelides obtectus*). One of them, MG3b mitotype, significantly reduces male fertility compared to other mitotypes when expressed in the same nuclear environment, but has no negative effects on females. In this study, we tested whether the MG3b mitotype affects OXPHOS functioning in males compared with other, control mitotypes. Specifically, we expressed MG3b and two control mitotypes alongside the same nuclear background and measured mitochondrial respiration in males using high-resolution respirometry. Our results show that respiration linked to all OXPHOS complexes is significantly reduced in MG3b males compared with controls. This is particularly true for the complex IV, which shows mean reduction in activity of around 40%. This work provides evidence that the decrease in mitochondrial respiration is the cause of subfertility of MG3b males.

Keywords: the Mother's Curse, *Acanthoscelides obtectus*, mitochondrial respiration, mitochondrial genotype

OC032. Finding the Y: a step towards improving the assemblies of Y chromosomes

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