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BOOK OF ABSTRACTS

Studies of ecology, evolution and physiology of insect as well as the development of pest management often assist with the necessity for sex identification. Morphological identification of sex in lepidopteran species is usually appropriate for adult stage but not juvenile stages. Lepidopteran insects have chromosomal sex determination (common ZW/ZZ). The main method of sexing for larval stage of Lepidoptera is karyotype analysis. The sex is identified according to presence/absence of sex heterochromatin. However, for eggs and young instars larvae this method requires high accuracy, which implies long time for insect preparation. Moreover, this method is inappropriate in the case of certain tissues or in frozen samples. For several Lepidopteran species, researchers have developed the molecular techniques for sex identification. These techniques are based on PCR detection of W chromosome in the samples. High genetic variability of W chromosomes makes it difficult to apply these techniques for different lepidopteran species. Currently there is no universal method of Lepidoptera sexing, which would be equally suitable for any type of samples, including frozen tissues. In order to identify sex of Lepidoptera species we propose a quasi-universal method based on the application of quantitative PCR. *This study was supported by Russian scientific foundation (grant # 17-76-10029).*

CO100

INFLUENCE OF LANDSCAPE FEATURES AND MANAGEMENT PRACTICES IN OLIVE GROVES FOR OPTIMIZED PEST CONTROL

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The efficacy of natural enemies, such as spiders, to prey on pests within an agroecosystem can be affected by the management practices performed by farmers as well as local and landscape-scale features. Within-grove features such as local spatial structure and shelter availability could be crucial to maintain the spider populations within crops. Also, management practices and higher order landscape structures can affect the biodiversity of the community of spiders. The objectives of this work were to study the horizontal and vertical distribution of spiders along the grove, the effect of the size and number of stones occurring on the ground surface, the effect of the agricultural management, and landscape-scale features on the spider community, considering olive groves conducted under organic farming and integrated production systems in Trás-os-Montes (Portugal). Spiders were sampled using pitfall traps and sticky traps, and shaking tree branches. All the captured spiders were identified and grouped in guilds. We found an increasing pattern in species richness from the central area of the olive grove to the surrounding area. The distribution of functional groups followed a pattern both vertically and horizontally. The number of stones significantly influenced the biodiversity of spiders. A homogeneous surrounding landscape had a significant detrimental effect on the spiders diversity. The spatial distribution of the spider community within the olive crop as well as the surrounding landscape must be taken into account for pest management purposes oriented to enhance the population of spiders.

Keywords: Shrubland, predator, stones, canopy, trunk, ground.

CO101

POSHBEE - ADDRESSING BEE HEALTH AND SUSTAINABLE POLLINATION

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PoshBee is a consortium addressed at the recent EU call for Bee Health and Sustainable Pollination. Here I present the consortium, in particular focusing on its aims and objectives, and discuss opportunities for engagement and impact.

Keywords: Honey bee, bumble bee, solitary bee, pollination, agrochemicals, pathogens, parasites, nutrition

CO102

COMBINING ENTOMOPATHOGENIC FUNGAL ISOLATES AND BOTANICAL COMPOUNDS FOR CONTROL OF FUNGUS GNAT LARVAE (DIPTERA: SCIARIDAE)

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Fungus gnats (for example *Bradysia impatiens*) can be serious pests to plants grown in nurseries and greenhouses, and although various approaches for control are available, safer and more effective methods are desirable. Entomopathogenic fungi as biological control agents could provide an effective complementary system in an integrated pest management (IPM) strategy. The aim of this study was to determine the efficacy of entomopathogenic fungi and two botanical compounds on the development of *B. impatiens* larvae in growing medium. In a first series of bioassays, three selected fungal isolates *Metarhizium brunneum* (Cb15), *Beauveria bassiana* (EABb04/01-Tip) and one soil-borne endophytic fungus (*Acremonium strictum*) were applied at a rate of 1×10^7 spore/ml directly to the growing medium. After 24h, twenty fungus gnat larvae were introduced into each experimental cup, and adult emergence monitored about 2 weeks using yellow sticky cards. Larvae were more susceptible to infection by *M. brunneum* as compared to the other fungal strains; larvae exposed to *B. bassiana* successfully developed to adults. In a second series of bioassays, larvae were exposed to the substrate treated with two botanical microcapsules, containing mentha oil, and a biological insecticide (*Bacillus thuringiensis*, Bt). In this experiment, the mean total number of adults emerging from treatments ranged from 42% in Bt to 63% for the botanical compound, exhibiting an attractant effect for the larvae. Subsequent bioassays were set-up to determine the efficacy of a combination of *M. brunneum* and the botanical compound on larval development and adult emergence of fungus gnats in the growing medium. Data collected from this trial demonstrated that less adults hatched from these treatments compared to single compound treatments or the control. This result suggests that this botanical compound, although attractive to the larvae, may have an additive role on the efficacy of *M. brunneum*, resulting in a better efficacy to control fungus gnat larvae.

Keywords: *Bradysia impatiens*, Entomopathogenic fungi, fungal infection, adult emergence

CO103

USING NATURE TO INFORM THE DEVELOPMENT OF NOVEL TOOLS AND MOLECULES FOR SUSTAINABLE CROP PROTECTION

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