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Dipartimento di Agraria

BOOK OF ABSTRACTS

Communication: From Signal Production to Perception

PO121

UNVEILING THE VIBRATIONAL COMMUNICATION AND THE MATING BEHAVIOR OF THE MEADOW SPITTLEBUG *PHILAENUS SPUMARIUS* (HEMIPTERA:APHROPHORIDAE)

Sabina Avosani, DICAM Department of Civil, Environmental and Mechanical Engineering, University of Trento; Research and Innovation Centre, Fondazione Edmund Mach, Italy
Vincenzo Verrastro, CIHEAM–IAMB - International Centre for Advanced Mediterranean Agronomic Studies, Italy
Valerio Mazzoni, Research and Innovation Centre, Fondazione Edmund Mach, Italy

The vibrational communication of *Philaenus spumarius*, insect vector of *Xylella fastidiosa*, was investigated to identify the vibrational signals associated with the mating behavior. Individuals (males and females arranged in singles, pairs or groups) were placed on a plant and the emitted signals were recorded with a laser vibrometer from the surface of a leaf. The male repertoire consisted in three types of vibrational signals. (M1) The Male Calling Song is a train of short harmonics (approximately 0.007 s) emitted either in presence or in absence of conspecifics; (M2) The Male Courtship Song is an alternation of harmonics and pulses produced either during the duet with the female or to compete with a rival during the courtship; (M3) The Male Rivalry Signal, a harmonic element of about 0.14 s, was emitted only after physical contact between males. The female repertoire consisted also of three types of vibrational signals. (F1) The Female Calling Song, made of a train of harmonics of approximately 0.008 s; the Female Response Signal, a single harmonic element emitted in reply to M2; The Female Refractory Signal, a longer harmonic element of approximately 0.14 s recorded in association with a refractory behavior (*i.e.* rejection of an approaching male). Interestingly, females became receptive to mating from September, much later than males that started to call in May. Only males that established a vibrational duet with a receptive female and maintained it throughout the searching phase eventually accomplished mating. In conclusion, in *P. spumarius* vibrational signals play an important role in the pair formation process, ensuring reciprocal identification and female localization by males. Further experiments with playbacks are required to definitely assess the specific function of the signals and also to identify candidate signals to be used for manipulating *P. spumarius* mating behavior to be used in IPM programs.

Keywords: *Philaenus spumarius*, vibrational communication, mating behavior

PO122

THE NEUROPEPTIDOME OF *SPODOPTERA EXIGUA* AND ITS REGULATION AFTER VIRAL INFECTION

Angel Llopis-Giménez, Estructura de Recerca Interdisciplinar en Biotecnologia i Biomedicina (ERI BIOTECMED), Departamento de Genética, Universitat de València, Burjassot, Valencia, Spain
Yue Han, Laboratory of Virology, Wageningen University & Research, Wageningen, The Netherlands
Vera I. D. Ros, Laboratory of Virology, Wageningen University & Research, Wageningen, The Netherlands
Salvador Herrero, Estructura de Recerca Interdisciplinar en Biotecnologia i Biomedicina (ERI BIOTECMED), Departamento de Genética, Universitat de València, Burjassot, Valencia, Spain

Neuropeptides are small signalling molecules produced as precursors in neurons and in neurocrine cells in multicellular organisms. These precursors are processed and modified, becoming mature peptides that will bind to their membrane receptors, regulating different aspects of the animal physiology and behaviour. *Spodoptera exigua* (Hübner) (Lepidoptera: Noctuidae) is a serious worldwide polyphagous pest. It is an excellent model for studying neuropeptidergic systems, contributing to the understanding of the adaptation of insects to different environments and providing new targets for the development of novel insecticidal agents. To study the neuropeptidome of *S. exigua*, RNA-seq data obtained from different tissues and developmental stages from *S. exigua* was mined for unigenes coding for hypothetical neuropeptide precursors. In total, 64 of such unigenes were identified and described based on their tissue specificity and regulation in response to different biotic and abiotic perturbations. In addition, the expression of the neuropeptidome was studied in brains of larvae infected with the *Spodoptera exigua* multiple nucleopolyhedrovirus (SeMNPV), an entomopathogenic virus used for the control of this pest.

Keywords: Neuropeptides, baculovirus, RNA-seq, expression changes, annotation

PO123

EFFECT OF PREDATORY BUG, *ORIUS LAEVIGATUS* SIZE ON *APHIS GOSSYPII* DEFENSIVE MECHANISMS

Ahmad R. Mohandesi, Department of Plant Protection, College of Agriculture and Natural Resources, University of Tehran, Karaj, Iran
Hamid R. S. Moayeri, Department of Plant Protection, Faculty of Agriculture University of Zanjan, Iran
Mojtaba Hosseinii, Department of Plant Protection, Faculty of Agriculture University of Zanjan, Iran
Hossein Allahyari, Department of Plant Protection, College of Agriculture and Natural Resources, University of Tehran, Karaj, Iran
Ahmad Ashouri, Department of Plant Protection, College of Agriculture and Natural Resources, University of Tehran, Karaj, Iran

Insects like other animals utilize various methods to protect themselves from natural enemies. Insect's defensive methods might differ against two kinds of predators. In this study, antipredator behaviors of cotton aphid (*Aphis gossypii*) in two stages, second and 4th instars, was determined in the presence of third instars and adult females of predatory bugs (*Orius laevigatus*). Droplet production, kicking, moving, and run away from feeding site, were determined by observation method. Study on dropped off the plant was carried out in the greenhouse condition. The results showed that the second instars of aphids just produce droplet in the presence of female adults of predatory bugs which are so aggressive predator, whereas in the presence of third instars of predatory bug they utilize another mechanism (kicking, moving and run away from feeding site). It seems that droplet production is costly and cotton aphids could grade mechanisms to save energy. Therefore, 4th instars in the presence of predatory bugs use another mechanism to save energy for reproductive. The result of this study showed that aphid could grade those defensive mechanisms. Antipredator behaviors gradation might be helpful to save energy for cotton aphids.

Keywords: *Aphis gossypii*, *Orius laevigatus*, antipredator behavior, droplet production, defensive mechanisms

PO124

ADULT-LARVA VIBRATIONAL COMMUNICATION: PLAYBACK EXPERIMENTS IN THE PAPER WASP *POLISTES DOMINULA*

Irene Pepiciello, Dipartimento di Biologia, Università degli Studi di Firenze, Italy
Alessandro Cini, Centre for Biodiversity and Environment Research, University College London, UK
Rachele Nieri, Center Agriculture Food Environment, University of Trento, italy