ECE 2018

XI EUROPEAN CONGRESS OF ENTOMOLOGY

2-6 JULY 2018, NAPOLI

Società Entomologica Italiana

Accademia Nazionale Italiana di Entomologia

Università degli Studi di Napoli Federico II

Dipartimento di Agraria

BOOK OF ABSTRACTS

PO075

MATING BEHAVIOUR AND DUAL MODE COMMUNICATION OF PEAR PSYLLA *CACOPSYLLA PYRI*

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Cacopsylla pyri (L.) (Hemiptera, Psyllidae) is one of the most important pests of European pear, and its management generally depends on the use of chemical insecticides, but *C. pyri* outbreaks are sometime observed. Ecological control strategies should be desirable and the knowledge of mating behavior is crucial to develop new ones. A multi-approaches research aimed to acquire knowledges about *C. pyri* mate finding. Electroantennographic (EAG) analyses and olfactometric bioassays were used to evaluate the activity of intraspecific semiochemicals on *C. pyri*. The EAG amplitudes revealed that volatile compounds, present in female cuticular extracts, elicited dose-dependent responses in males, indicating that these compounds were able to stimulate the male olfactory system. In behavioral bioassays, living females and female cuticular extracts, attracted summerform males in a highly significant manner. Gas chromatography-mass spectrometry revealed that 13-methylheptacosane, 11,13-dimethylheptacosane, 2-methylheptacosane and 3-methylheptacosane were found in larger amounts in female extracts than in male ones, which suggests their role in male attraction. In addition, a laser vibrometer device was used to detect a male-female substrate-born vibrations pattern during pre-copulatory period. The female vibrational signal was recorded as mp3 and conveyed, in loop using a minishaker, on pear shoots with *C. pyri* virgin pairs to interfere with the mating by masking the natural communications.
Research supported by Centro Interdipartimentale per il Miglioramento e la Valorizzazione delle Risorse Biologiche Agro-Alimentari (BIOGEST-SITEIA), Reggio Emilia, Italy.

Keywords: European pear psylla, Electroantennographic (EAG) analyses, olfactometric bioassays, 13-methylheptacosane, 11,13-dimethylheptacosane, Gas chromatography-mass spectrometry

PO076

MAIZE LEAF WEEVIL (*TANYMECUS DILATICOLLIS* GYLL): SERIOUS PEST PROBLEM IN ROMANIA

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Romania has more than 2.5 million hectares as maize cultivation which represents the highest area within the EU. However, the maize monoculture is favorable for pests. *Tanymecus dilaticollis* (Coleoptera: Curculionidae) is the main pest of the maize mainly at south and south-east part of the country. The insect is harmful when maize plants are in the early vegetation stages (BBCH 10-14). Each year, around one million hectare area is attacked by this pest with different level of attack intensities. In case of high *T. dilaticollis* invasion, the maize seedlings could not survive and the farmers have to resow their fields, causing unexpected costs. Spring drought and higher temperatures conditions are even more favorable circumstances for weevils attack. Also, maize monoculture has an increasing effect on pest density associate with higher impact of attack. Recent studies from the last decades pointed out, the chemical treatment of the maize seeds with systemic insecticides was the most effective method to reduce the loss. However, the use of neonicotinoid insecticides as seed treatment of the spring crops was restricted from 2014, according to the EU directive 485/2013. Because of this resolution, no effective insecticides are available for maize seed treatment against *T. dilaticollis* in Romania. For this reason researches are facing with the challenge to find some alternative treatments instead of neonicotinoids seeds treatment which can be permanently banned in the EU after 2018. This paper presents some results about the effectiveness of the seed treatments with imidaclopird active ingredient comparative with single vegetation spraying with deltamethrin or thiacloprid active ingredients for *T. dilaticollis* control. The experiment was carried out in south-east of Romania, between 2015 and 2017. The single spraying experiment on plants of BBCH 10-14 vegetation stage did not provide enough protection against weevils attack under high pest density (4 adults/plant).

Keywords: Maize, pest, seed, chemical, control

PO077

PORTABLE ELECTRONIC NOSE TECHNOLOGY FOR DETECTING THE BROWN MARMORATED STINK BUG

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Brown marmorated stink bug *Halyomorpha halys* is a new threat for agricultural crops in Europe, and accurate and rapid diagnostic tools are needed for a successful management of this pest. In fact, for a correct timing of control measures, it is crucial to promptly assess the presence and abundance of the pest in the field. Recently, electronic nose (e-nose) technology has been developed for identifying, characterizing and recognizing odour pattern of stink bugs or stink bug-induced damage. Therefore, this study aimed at exploring the feasibility of using a commercial available e-nose, the Cyranose-320 (Smiths Detection Inc., Pasadena, CA), for identification and discrimination of *H. halys* among other bug species, and for detection of the bug-induced damage on fruit. The instrument trained to recognize specific odour patterns gave interesting results by means of Chemometric Data Analysis software. In laboratory conditions, the e-nose proved to detect and distinguish odours emitted by undisturbed and disturbed, males and females of *H. halys* and its sensitivity increased at higher odour concentrations. Moreover, by dual comparison, the e-nose discriminated the odour emitted by undisturbed or disturbed individuals of *H. halys* from those ones of the two species *Nezara viridula* and *Gonocerus acuteangulatus*. By contrast, in field conditions, the e-nose did not accurately differentiate odours from different bug species. In laboratory conditions, it was highly accurate in discriminating between damaged and undamaged hazelnuts and apples. For promising applications in the field, further research is needed to adapt the sensor system for a more robust response to the odour of *H. halys* in different environmental conditions.

Keywords: *Halyomorpha halys*, Cyranose-320, monitoring tool, fruit damage