

**S4-252****EXPLORATORY SEARCH FOR BIOLOGICAL CONTROL****AGENTS OF THE ASIAN CITRUS PSYLLID *Diaphorina citri***

Lan S<sup>1</sup>, Radabaugh G<sup>2</sup>, Morgan DJW<sup>2</sup> & Hoddle MS<sup>3</sup>

<sup>1</sup>Embrapa Meio Ambiente, Jaguariúna, SP, Brazil; <sup>2</sup>California Department of Food and Agriculture (CDFA), Riverside, CA, USA; <sup>3</sup>University of California, Riverside, CA, USA; e-mail: luiz.sa@embrapa.br

Brazil is the largest producer of oranges and second largest producer of citrus, accounting for 30% of world production of orange, 50% of orange juice and 85% of the world market of this commodity valued at US\$ 14.6 billion per year and is responsible for generating 350,000 jobs in the

country. Hunglongbing disease (HLB), caused by the phloem bacteria *Candidatus Liberibacter* spp., is the biggest threat to the country's citrus industry. HLB is already present in the African, American (North, Central and South) and Asian continents. In Brazil, it was detected in 2004 in the State of São Paulo. The aim of this research was to carry out exploratory search for biological control agents of *D. citri*, focusing on the parasitoid *Diaphorencyrtus aligarhensis* in California, USA. The rearing methodology of the pest consisted of cages containing seedlings of *Murraya paniculata*. A population of over 1,000 adults of the pest under controlled conditions (temperature 24±2 °C, RH 70±10% and photoperiod 14:10) was developed. The parasitoid was imported on Sept, 28th 2015 from Riverside-CA (as Permit MAPA No. 431/2015). Only four adults of *D. aligarhensis* imported emerged and it was not possible to establish population of this bioagent in quarantine laboratory. The procedures will be repeated as more individuals are imported in 2016.

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Keywords: quarantine facilities; classical biological control; parasitoid.

e-mail: luiz.sa@embrapa.br

The Asian citrus psyllid, *Diaphorina citri* (Hemiptera: Psyllidae), is considered an important pest of citrus by its ability to transmit the HLB disease. Thus, the aim of this study was to evaluate the potential of protease inhibitors for the control of this insect. The tests were performed with *Murraya paniculata* plants. The following aqueous solutions were applied: (1) distilled water (control), (2) Triton X-100 (0.1 m L<sup>-1</sup>) and (3) cysteine proteinase inhibitor E-64 (0.05 mg mL<sup>-1</sup>) and Triton X -100 (0.1 mL L<sup>-1</sup>). Four treatments were performed: solutions (1), (2) and (3) were applied four days before the release of the insects on the plants and for the last treatment, solution (3) was applied immediately before the insects release. The solutions were applied to the stem of the plant, 20 mL per plant. Were used five plants per treatment. Ten adults of *D. citri* were released on each plant after four hours of starvation. Each plant was maintained in a cage and mortality was observed for five days. The data was analyzed by Tukey test ( $p > 0.05$ ). There was no significant difference in mortality of insects among the treatments. Enzymatic analysis showed that there is enzymatic activity of cysteine proteases in the *D. citri* midgut, thus, the low mortality after ingestion of this compound may indicate the need to adapt the bioassay method.

Financial support: Embrapa.

Keywords: E-64; Asian citrus psyllid; huanglongbing.

#### S4-264

##### INSECTICIDES EFFICIENCY IN *Diaphorina citri* KUWAYAMA (HEMIPTERA: LIVIIDAE) CONTROL

Vescove HV, Corassari DM, Ferreira MB & Stamato Jr RP  
Centro Universitário de Araraquara (Uniara), Araraquara, SP, Brazil; Vescove Consultoria, Araraquara, SP, Brazil; GTAAC, Bebedouro, SP, Brazil; GTAAC, Bebedouro, SP, Brazil; e-mail: vescoveconsultoria@gmail.com

The HLB is one of the major diseases that threaten citrus production. It is transmitted by the vector *Diaphorina citri* Kuwayama (Hemiptera: Liviidae), popularly known as psyllid. One of the preventive measures of the disease is the control of the vector. The aim of this study was to evaluate the efficiency of the insecticides of the active ingredients (a.i.) Malathion (37,5 and 50 mL of a.i. 100 L<sup>-1</sup>); Gamacyhalothrin (0,375 and 0,525 mL of a.i. 100 L<sup>-1</sup>); Dimethoate (30 and 40 mL of a.i. 100 L<sup>-1</sup>); Imidacloprid (3,5 and 4,2 mL of a.i. 100 L<sup>-1</sup>) and chlorpyrifos (36 and 48 mL of a.i. 100 L<sup>-1</sup>) to control the psyllid. The experiment was conducted at the Institute of Biotechnology, Araraquara-SP in *Citrus sinensis* (L.) Osb. cv. Valencia nursery trees. Ten insects were confined in a branch of each nursery tree after spraying and 7, 12 and 15 days after the application of the insecticide (DAA). The active ingredients that showed greater efficiency (100%) were all active ingredients tested on 7<sup>th</sup> DAA and only Gamacyhalothrin at the highest dose in the 12<sup>th</sup> DAA. On the 15<sup>th</sup> DAA the Dimethoate at the highest dose showed the highest efficiency (75%). All active ingredients tested were efficient in controlling the psyllid, but Dimethoate provided higher mortality insects for longer.

Financial support: GTACC and Vescove Consultoria.

Keywords: psyllid; mortality; HLB.

#### S4-272

##### CHEMICAL CONTROL OF *Chaetanaphothrips orchidii* (MOULTON) (THYSANOPTERA: THRIPIDAE) IN CITRUS – ARGENTINA

Lizondo M, Martínez D, Gastaminza G, Manzano D, Ponce de Leon B, Bayos N, Eraso Di Giusepe F, Oliver M, Trujillo M & Willink E

Estación Experimental Agroindustrial Obispo Colombres (EEAOC), Tucumán, Argentina;  
e-mail: mjlizondo@eeaoc.org.ar

Industries that purchase lemon by-products (essential oils) imposed heavy restrictions on the use of organophosphates (chlorpyrifos, dimethoate, etc.) to control pests like scale insects and thrips. *Chaetanaphothrips orchidii* leads to big losses because of its biological characteristics and its great damaging capacity, so frequent insecticide applications are required. However, the repeated use of the same active ingredient can result in pest resistance. This work aimed to assess alternatives to abamectin and spinosad which would equally control *C. orchidii* in lemon. The trials were conducted on lemon farms in Tucumán (Argentina)