2nd INTERNATIONAL Molecular Plant Protection Congress

ORHANGAZİ • BURSA

May 15-18, 2023

INNOVATIONS IN PLANT PROTECTION

PROGRAM AND ABSTRACT *BOOK*

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Tanıtım nüshasıdır, para ile satılmaz. Bandrol uygulamasına ilişkin usul ve esaslar hakkındaki yönetmeliğin beşinci maddesinin ikinci fıkrası çerçevesinde bandrol taşıması zorunlu değildir.

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IMPPC2023

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IMPPC2023 PROGRAM

18 MAY 2023 THURSDAY

07:30 DEPARTURE FROM HOTELS TO CONGRESS CENTER

08:00 FINAL DEPARTURE FROM HOTELS TO CONGRESS CENTER

08:30-09:50
PLANT MYCOLOGY 5
SESSION 25 Hall 2
Moderators:
Massimo Reverberi
Semra Hasançebi

08:30-08:50
O130. Dwayne Hegedus-KEY
"Receptor-like kinases BAK1 and SOBIR1 are required for necrotizing activity of *Sclerotinia sclerotiorum* necrosis-inducing effectors"

08:50-09:10
O131. Kevin Ashford-KEY
"Laminarin innovation pathways"

09:10-09:20
O132. Deniz Çakar
"Determination of vc and mating types of *Cryphonectria parasitica* isolates by multiplex PCR, obtained from thirteen chestnut growing provinces of Türkiye"

09:20-09:30
O133. Ülkü Baykal
"Characterization of barcode sequences from complete nuclear rRNA sequences of the hazelnut (*Corylus avellana*) powdery mildew fungus *Erysiphe corylacearum*"

09:30-09:40
O134. Durmuş Erdurmuş
"Characterization of *Trichoderma* spp. obtained from Sakarya plateaus, Türkiye and efficiency of these isolates as biocontrol agents against *Neopestalotiopsis rosae* in strawberry"

09:40-09:50
O135. Osman Telli
"Effect of light on the life cycle, development and pathogenicity of *Hyaloperonospora arabidopsidis*"

08:30-09:50
ENTOMOLOGY 8 SESSION
26 Hall 4
Moderators:
David Mota-Sanchez
Pam Marrone

08:30-08:50
O136. Neil Crickmore-KEY
"Challenges and potential solutions for overcoming insect resistance to *Bacillus thuringiensis* based biopesticides"

08:50-09:10
O137. Ping Wang-KEY
"Bt resistance in *Trichoplusia ni*: mechanisms of resistance to multiple Bt toxins in a generalist insect"

09:10-09:20
O138. Gözde Büşra Eroğlu
"Isolation and molecular identification of local entomopathogenic bacteria from *Pieris brassicae*"

09:20-09:30
O139. Vildan Bozkurt
"Isolation and diagnosis of potentially entomopathogenic bacteria from larvae of Asian walnut moth *Erschoviella musculana* Erschoff (Lepidoptera: Nolidae)"

09:30-09:40
O140. Anna Subbotina-STU
"Sex specificity in defense mechanisms of *Lymantria dispar* against *Bacillus thuringiensis*"

09:40-09:50
O141. Betül Yılmaz-STU
"Formulation and characterization of a local *Bacillus thuringiensis* ssp. *israelensis*: A Promising alternative to chemical control of *Culex pipiens* (Diptera: Culicidae)"

08:30-10:00
ENTOMOLOGY 9 SESSION
27 Main Hall
Moderators:
Marek Jindra
Michael Kanost

08:30-08:50
O142. Subba Reddy Palli-KEY
"Development of genomics-based approaches for control of fall armyworm"

08:50-09:10
O143. Xavier Bellés-KEY
"Major developmental transitions during insect ontogeny are associated with dramatic changes in the network architecture of miRNA-mRNA interactions"

09:10-09:30
O144. Kostas D Mathiopoulos-KEY
"The use of lncRNAs in insect control. Lessons from the tiger mosquito"

09:30-09:50
O145. Kun Yan Zhu-KEY
"Breaking down the barriers: Strategies to enhance RNAi efficiency in insects"

09:50-10:00
O146. Shuhei Hashiro
"Development of dsRNA production technology using *Corynebacterium glutamicum* for RNAi-based pesticides"

10:00-10:30 COFFEE BREAK

10:30-11:50
PLANT MYCOLOGY 6
SESSION 28 Hall 2
Moderators:
Li-Jun Ma
Mark Belmonte

10:30-10:50
O147. Massimo Reverberi-KEY
"Natural compounds from mushrooms to challenge plant pathogens"

10:50-11:10
O148. Mahmut Tör-KEY
"Translational research on pulse downy mildews: Deploying resistance genes, pathogenomics and microbial biocontrol"

11:10-11:30
O149. Hailing Jin-KEY
"Voyage of fungal pathogen small RNAs into plants"

11:30-11:40
O150. Bayram Kansu
"The pathogenic and phylogenetic relationships of endophytic *Lecanicillium* spp. isolates from turfgrass seeds"

11:40-11:50
O151. Merve Yiğit
"Determination of *Fusarium* wilt (*Fusarium oxysporum* schlecht. F. sp. melongenae) resistance using molecular marker in double haploid eggplant populations"

10:30-11:50
PLANT BACTERIOLOGY 4
SESSION 29 Hall 3
Moderators:
Mine Saraçoğlu
Jacob Malone

10:30-10:50
O152. Assunta Bertaccini-KEY
"Phytoplasmas and plant diseases: a transkingdom relationship"

10:50-11:10
O153. Michael Kube-KEY
"Insights into pathogen-host interactions from phytoplasma genomes"

11:10-11:20
O154. Filiz Randa Zelyüt
"Multilocus sequence typing of 'candidatus *Phytoplasma solani*' infecting cucurbits from Türkiye"

11:20-11:30
O155. Barbaros Mülayim-STU
"Comparative genome analysis of phytoplasma in plants with different fruit types"

11:30-11:40
O156. Yiğit Sabri Ünlü-STU
"Molecular detection of phytoplasma associated disease in Türkiye"

11:30-11:40
O156. Yiğit Sabri Ünlü-STU
"Molecular detection of phytoplasma associated disease in Türkiye"

11:40-11:50
O157. Abdullah Al-Sadi
"Exotic plant disease outbreaks in the Arabian Peninsula: Challenges and opportunities"

10:30-11:30
ENTOMOLOGY 10 SESSION 30 Hall 4
Moderators:
Neena Mitter
Glenn F. King

10:30-10:50
O158 . Salvador Herrero-KEY
"Plant volatiles as mediators of the insect interaction with baculovirus"

10:50-11:00
O159. Dönüş Gencer
"Isolation and Identification of a new Cypovirus from *Dasychira pudibunda* (Lepidoptera, Lymantriidae) in Türkiye"

11:00-11:10
O160. Vyacheslav Martemyanov
"New *Dendrolimus sibiricus* cypovirus-1: from molecular features to field bioassay" in Türkiye"

11:10-11:20
O161. Mahmut Mete Karaca-STU
"Effects of tetracycline treatments on biological parameters and endosymbionts of *Bemisia tabaci* MEAM1"

11:20-11:30
O162. Dilşan Boylu-STU
"Quantitative Real Time PCR (qRT-PCR) analysis of *Wolbachia* infection in different developmental stages of *Tuta absoluta* populations from Antalya"

10:30-11:50
ENTOMOLOGY 11
SESSION 31 Main Hall
Moderators:
Neil Crickmore
Elaine Fitches

10:30-10:50
O163. Marek Jindra-KEY
"Species-selective agonists of juvenile hormone receptor - en route to eco-friendly IGRs"

10:30-10:50
O164. Marc F. Schetelig-KEY
"Zero pesticide pest control - genetic markers for efficient SIT programs in agriculture"

11:10-11:30
O165. Francesco Pennacchio-KEY
"Insect multitrophic interactions for bioinspired plant protection"

11:30-11:40
O166. David Sedlak
"High-throughput discovery of species-selective juvenile hormone receptor agonists"

11:40-11:50
O167. Bahram Naseri
"Effect of pyriproxyfen, a juvenile hormone analog, on diapausing larvae of *Ephestia kuehniella* (Zeller) (Lepidoptera: Pyralidae)"

12:00-13:30 LUNCH
12:15 DEPARTURE FROM CONGRESS CENTER TO HOTELS (Detour)
14:00 DEPARTURE FROM HOTELS TO CONGRESS CENTER (Detour)
13:30-15:30 POSTER SESSION
Exhibition Hall
All presenting poster authors should be present at their posters.
15:30-16:00 CLOSING SESSION
Main Hall
16:00 DEPARTURE FROM CONGRESS CENTER TO HOTELS
16:30 DEPARTURE FROM CONGRESS CENTER TO HOTELS
17:00 DEPARTURE FROM HOTELS TO GALA DINNER
17:30 DEPARTURE FROM HOTELS TO GALA DINNER (Detour)

18:00 DEPARTURE FROM CONGRESS CENTER TO HOTELS
18:30 DEPARTURE FROM CONGRESS CENTER TO HOTELS
19:00 DEPARTURE FROM HOTELS TO CONGRESS CENTER
19:30 FINAL DEPARTURE FROM HOTELS TO CONGRESS CENTER
19:30-00:30 GALA DINNER Hektaş Ballroom
22:30 DEPARTURE FROM GALA DINNER TO HOTELS
23:30 DEPARTURE FROM GALA DINNER TO HOTELS
00:30 DEPARTURE FROM GALA DINNER TO HOTELS
01:00 FINAL DEPARTURE FROM GALA DINNER TO HOTELS

POSTER SESSION

All poster should be attached to the boards by 16 MAY 2023 TUESDAY, 08:30-17:30.
All presenting poster authors should be present at their posters on 18 MAY 2023 THURSDAY, 13:30-15:30.

P1. Bahram Naseri Physicochemical traits of sugarcane cultivars affected digestive *enzymatic profile of Sesamia nonagrioides* (Lefebvre) (Lepidoptera: Noctuidae) larvae

P2. Javad Salmanı-Moghanlou Effect of different wheat cultivars on digestive enzymes activity of *Trogoderma granarium* (Everts) (Coleoptera: Dermestidae) larvae

P3. Seda Biryol Mycoformulation developed using *Metarhizium anisopliae* (Ascomycota: Hypocreales) based on solid-state fermentation method against *Myzus persicae* (Hemiptera: Aphididae)

P4. Shinichiro Sawa Chemotaxic manipulation as a strategy to protect crop plants from root-knot nematode infections

P5. İsmail Demir Effects of some entomopathogenic fungi on the citrus longhorned beetle, *Anoplophora chinensis* (Coleoptera: Cerambycidae)

P6. *STU* Ceren Doğan Molecular genetic basis of pesticide resistance in phytoseiids as biological control agents

P7. *STU* Nihan Güneş Molecular characterization of Tomato spotted wilt virus (TSWV) and Cucumber mosaic virus (CMV) affecting tomato and pepper crops in Izmir Province

P8. Merve Kara Molecular identification of powdery mildew disease agent *Golovinomyces orontii* on periwinkle (***Vinca major***) plants growing in Türkiye

P9. *STU* Iva Rosić Population dynamics of *Bacillus amyloliquefaciens* SS-38.4 in the phyllosphere of sugar beet and its biocontrol activity against Pseudomonas syringae pv. aptata P21

P10. *STU* Marina Anteljević Phylogenetic analysis of *Pseudomonas syringae* isolates from the Danube River Basin revealed association with past epidemics in Serbia

P11. Dilay Hazal Ayhan Distinct genetic differences between plant and human pathogenic isolates of *Fusarium oxysporum*

P12. Selma Ülgentürk Investigation of the efficacy of some biopesticides against oleander scale, *Aspidiotus nerii* in laboratory conditions

P13. Randy Kutcher Detection and differentiation of *Xanthomonas translucens* pv. *translucens* and pv. *undulosa* from wheat and barley by duplex quantitative PCR

P14. *STU* Utku Şanver Molecular analysis of copper tolerance and genetic diversity in *Pseudomonas syringae* pv. *syringae*, the causal agent of cherry bacterial canker disease

P15. Marek Jindra Unique peptidic agonists of a juvenile hormone receptor with species-specific effects on insect development and reproduction

P16. *STU* Anna Subbotina Molecular diagnostics of *Dendrolimus sibiricus* cypovirus-1 in alternative host

P17. *STU* Hakkı Taşdelen Molecular methods for the identification of Amaranthus species

P18. *STU* Fadime Yetis The molecular characterization of viruses found in honeybee colonies infested with *Varroa destructor* in Türkiye

P19. *STU* Halim Can Kayikci The role of ncRNAs in parasitic plant infection and some strategies of struggling in tomato breeding

P20. Massimo Reverberi Biocontrol treatments confer protection against *Phytophthora infestans* infection of potato by inducing defense hormone biosynthesis

P21. İrem Altın Proteomic characterization of bacteriophage peptides of pathogenic *Xanthomonas arboricola* pv. *juglandis* using Matrix-Assisted Laser Desorption Ionization-Time-of-Flight Mass Spectrometry

P22. *STU* Tuğba Uslu Detection and molecular characterization of viruses infecting tomatoes grown in greenhouses in the highlands of inner western Anatolia

P23. *STU* Gamze Mertoğlu Recent studies on molecular identification of *Phytoseiidae* species (Acari: Mesostigmata) in Türkiye

P-23-STU

Recent studies on molecular identification of *Phytoseiidae* species (Acari: Mesostigmata) in Türkiye

Gamze Mertoğlu[1,*], Nabi Alper Kumral[1], Marie-Stéphane Tixier[2]

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[2] Institut Agro Montpellier, UMR CBGP, INRAE, CIRAD, IRD, Université of Montpellier, Montpellier, France

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The predatory mites belong to Phytoseiidae family are effective biological control agents that feed on spider mites and some small pests. Their accurate identification is critical for success of biological control. The commonly used method for identification of phytoseiid species is confront of their morphologic features. As they are microscopic organisms with complex and minute taxonomic characters, various target DNA fragments including 12S rRNA, COI mtDNA, CytB mtDNA, and ITSS were identified as alternative diagnostic tools at the species level within a barcoding framework. In this study, we focus on the latest researches on the molecular barcoding of Phytoseiidae species found in Türkiye. DNA sequence data in this review have been obtained from NCBI GENBANK database. The DNA sequences shared in the database was mostly produced by using COI mtDNA marker and followed by 12S rRNA, ITSS, CytB mtDNA and HSP90, respectively. Among 112 phytoseiid species recorded from Turkiye, 45% of them have already been characterized by molecular identification while 55% of which still need to be sequenced. Based on the DNA sequences belonging to species from 23 different genera, *Typhlodromus* is the most studied genera, and followed by *Neoseiulus*, *Amblyseius*, *Euseius*, and *Phytoseiulus*. Although *Typhlodromus pyri* is not predominant in Turkiye, this species is the most sequenced species among 30 different species in the genus *Typhlodromus*. Considering ecological and habitat variations, present molecular data about Turkish phytoseiid populations is inadequate. In the future, it is necessary to perform more molecular studies covering both Turkish populations and undefined worldwide species.

Key words: Molecular markers, identification, taxonomy, Phytoseiidae, DNA barcoding

P-24

Action of species-selective juvenile hormone receptor agonists on insect development

David Sedlak[1,*], Matej Milacek[2,3], Lenka Bittova[2], Sarka Tumova[2], Marek Jindra[2]

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Juvenile hormone (JH) maintains larval character of insect juveniles by activating the *Kr-h1* gene through a JH receptor complex (JHR) comprising Met and Tai proteins. Metamorphosis to adults requires absence of JH and *Kr-h1* expression during the final juvenile stage in both hemimetabolous and holometabolous insects. Administering JHR agonists at this time prevents adult development. Synthetic JH mimics that presently serve to control pest and disease vectors display poor selectivity toward target species. To develop selective means for insect control, we screened a chemical library of 90K compounds for activators of JHRs from diverse target species. We have found compounds that bound Met, stimulated assembly of the JHR complex, and blocked adult development in a species-selective manner. When treated with the specific JHR agonists, last-instar hemimetabolous larvae molted to a doomed extra larval instar, whereas treated pupae of holometabolans either formed second lethal pupae (beetles) or arrested without producing viable adults (mosquitoes). In contrast, development of honey bee pupae was unaffected by the compounds targeting other species. Our data demonstrate that novel, species-selective compounds for insect research and control can be developed. Supported by grants 20-05151X (CSF) and LM2018130 (MEYS).

Key words: Insect development, metamorphosis, juvenile hormone, hormone receptor, agonist, selectivity, high-throughput screening