



PROGRAM

MONDAY 3 OCTOBER 2022

11.00 - 18.30 – REGISTRATION

15.30 - OPENING CEREMONY

Dr. Jordi Riudavets (IRTA) (*Convenor WG Integrated Protection Stored Products IOBC/WPRS*)

Dr. Nuria Agustí (IRTA) (*Local Organizer*)

Dr. Marc Bardin (INRAE) (*Liaison officer IOBC/WPRS*)

Dr. Pere Puigdomènech (*President of the Biological Sciences Section of the Institut d'Estudis Catalans (IEC)*)

Dr. Elisenda Guillaumes (*General Director of Agriculture and Livestock of the Generalitat de Catalunya*)

SESSION 1: PEST PREVENTION DURING STORAGE AND TRANSPORTATION. *Moderators: Pasquale Trematerra and Benjamin Fürstenau.*

16:30-16:45 **Agustí N., del Arco L., Castañé C., Riudavets J.** Molecular methods for the detection and identification of pest insects in stored grain.

16:45-17:00 **Feston J., Kiever S., Kelley P., Estabrook E.** Advances in remote monitoring for stored product pests.

17:00-17:15 **Müller-Blenkle C., Simon U., Szallies I., Prozell S., Schöller M., Adler C.S.** Large-scale acoustic detection of beetles in grain storage using the “Beetle Sound Tube”-System.

17:15-17:30 **Navarro S., Navarro H., Inbari N.** Parameters for appraising the storage quality of paddy rice.

17:30-17:45 **Fürstenau B.** Pilot project for monitoring stored-product pest insects inside and outside grain storages in Germany.

17:45-18:00 **Trematerra P.** Navel orangeworm *Amyelois transitella* (Walker) (Lepidoptera, Pyralidae) found in Europe, a potential Union quarantine pest.

18:00-18:15 **Duarte S., Barros G., Carvalho L., Mourato M., Carvalho M.O.** Detection of khapra beetle (*Trogoderma granarium* Everts) and other insects associated with stored grains in Portugal - preliminary studies.

18:15-18:30 **Cabacos M., Crépon K.** Connected monitoring of beetles during grain storage to prevent proliferation.

18.30 - WELCOME DRINK

TUESDAY 4 OCTOBER 2022

SESSION 2: BIOLOGY OF STORED PRODUCT PESTS AND DISEASES, INSECTS AS FOOD I.

Moderators: Sonja Gvozdenac and Christos Athanassiou.

- 08:30-08:45 **Morrison W.R., Ponce M.A., Sierra P., Lizarraga S., Van Winkle T., James A., Scully E.D., Kim T.N.** Linking the behavioural response by stored product insects to emissions of microbial volatiles from grain.
- 08:45-09:00 **Duarte S., Hilário C., Tomás J., Alvito P., Boavida R., Magro A., Carvalho M.O.** Interaction between *T. castaneum* and mycotoxin-producing fungi present in milled grains.
- 09:00-09:15 **Quellhorst H., Kim T., Zhu K.Y., Morrison W.R. III.** Short-term spatial niche partitioning in single-layer grain columns between the larger grain borer and maize weevil with implications for management of stored maize.
- 09:15-09:30 **Baliota G.V., Papadimitriou E., Scully E.D., Athanassiou C.G.** Population growth of *Prostephanus truncatus* (Horn) (Coleoptera: Bostrychidae) in a wide range of temperatures: Does the geographic origin of a strain affect its development and progeny production capacity?
- 09:30-09:45 **Mpofu P., Machekano H., Nyamukondiwa C.** Parental acclimation reduces offspring thermal fitness in a postharvest insect species *Sitotroga cerealella* (Olivier).
- 09:45-10:00 **Boukouvala M.C., Romano D., Kavallieratos N.G., Stefanini C., Canale A., Benelli G.** Influence of lateralization on male mating success of *Tribolium castaneum* (Herbst) and *Tenebrio molitor* L. (Coleoptera: Tenebrionidae).
- 10:00-10:15 **Gvozdenac S., Ilić A., Vasić M., Nagl N., Prvulović D., Petrović G., Tanasković S., Vukajlović F.** Are trypsin inhibitors responsible for the suitability of different legumes for *Acanthocelides obtectus* development?
- 10:15-10:30 **Adamaki-Sotiraki C., Rumbos C.I., Deruytter D., Athanassiou C.G.** Strain effect on the development and mating compatibility of *Tenebrio molitor* L. (Coleoptera: Tenebrionidae).

10.30 - COFFEE BREAK and POSTER SESSION I*

SESSION 2: BIOLOGY OF STORED PRODUCT PESTS AND DISEASES, INSECTS AS FOOD II.

Moderators: Sonja Gvozdenac and Christos Athanassiou.

- 11:30-11:45 **Scully E.D., Nguyen V., Bingham G., Smith C.M., Zhu K.Y.** Genomics tools to assess the usage of alternate habitats and landscapes by *Rhyzopertha dominica* (Coleoptera: Bostrychidae).
- 11:45-12:00 **Savoldelli S., de Milato S., Lupi D., Jucker C.** Development of *Plodia interpunctella* and *Corcyra cephalonica* on cricket flour.
- 12:00-12:15 **Duarte S., Geirinhas H., Limao J., Pires L., Barros G., Louro L., de Sousa I., Mourato M., Carvalho M.O.** Red flour beetle and the paradigm of edible pests.
- 12:15-12:30 **Rumbos C.I., Baliota G.V., Adamaki-Sotiraki C., Adamaki-Sotiraki C., Kotsou K., Rigopoulou M., Athanassiou C.G.** Optimising mealworm rearing for stored product and edible insects' applications: the effect of wet feed.
- 12:30-12:45 **Riudavets J., Castañé C., del Arco L., Agustí N., Boukid F., Castellari M., Martí M., Martínez E., Ariño J** The Mediterranean flour moth, the black soldier fly, and the yellow mealworm for the bioconversion of different by-products of the agro-food industry.

12.45 - LUNCH

SESSION 3: BIOLOGICAL CONTROL, MATING DISRUPTION AND NATURAL PRODUCTS I.

Moderators: Nickolas Kavallieratos and Stanislav Trdan

- 15:00-15:15 **Castañé C., Campos J.M., Martínez M.T., del Arco L., Agustí N., Riudavets J.** Control of the maize weevil, *Sitophilus zeamais*, with the larval parasitoid *Anisopteromalus calandrae* in big bags of paddy rice.
- 15:15-15:30 **Del Arco L., Riudavets J., Castañé C.** *Cephalonomia tarsalis*, a promising parasitoid for the control of the sawtoothed grain beetle.
- 15:30-15:45 **Hasan M.M., Yeasmin L.** Application of nuclear techniques for the improvement of mass rearing of parasitoids for implementing biological control of pests.
- 15:45-16:00 **Campbell J.F., Gerken A.R., Dryer D.** Influence of mating disruption treatments on male and female *Plodia interpunctella* behaviour.
- 16:00-16:15 **Agrafioti P., Ioannidis P.M., Lampiri E., Kaloudis S., Chalkidis V., Athanassiou C.G.** Mating disruption of *Ephestia* sp. and *Plodia interpunctella* in a feed mill.
- 16:15-16:30 **Gerken A.R., Abts S.R., Dryer D., Campbell J.F.** Female Indianmeal moths, *Plodia interpunctella*, respond to synthetic pheromone by altering their behavior.
- 16:30-16:45 **Ahmad S.** Potential use of different strains of entomopathogenic fungi to control store grain insect pests red flour beetle (*Tribolium castaneum*) Tenebrionidae: Coleoptera.
- 16:45-17:00 **Guarino S., Suma P., Peri E.** New attractants for trapping the cigarette beetle: from laboratory to field application.

17.00 – END OF SESSIONS

WEDNESDAY 5 OCTOBER 2022

SESSION 3: BIOLOGICAL CONTROL, MATING DISRUPTION AND NATURAL PRODUCTS II.

Moderators: Nickolas Kavallieratos and Stanislav Trdan.

- 08:30-08:45 **Soltani A., Djebbi T., Mathlouthi I., Haddad A., Sadraoui-Ajmi I, Yangui I., Mediouni-Ben Jemâa J.** Insecticidal potential of *Rosmarinus officinalis* essential oil against *Cryptolestes ferrugineus* and its impact on sensory parameters of semolina.
- 08:45-09:00 **Fürstenau B., von Moltke P.** Biological and insecticidal activity of different fennel chemotypes against stored-product insects.
- 09:00-09:15 **Kavallieratos N.G., Nika E.P., Skourti A., Perinelli D.R., Spinozzi E., Bonacucina G., Cappellacci L., Morshedloo M.R., Canale A., Benelli G., Maggi F.** Mixing essential oil-based nanoemulsions: A step towards the generation of effective green grain protectants.
- 09:15-09:30 **Kleisiari C., Kleftodimos G., Baliota G.V., Athanassiou C.G., Vlontzos G., Kateris D.** Public acceptance regarding the use of diatomaceous earth for the protection of stored agricultural products.
- 09:30-09:45 **Lampiri E., Moisisidis I.C., Sakka M.K., Karanguran R., Losic D., Athanassiou C.G.** Evaluation of graphene for the control of stored product insects.

SESSION 4: CHEMICAL PEST CONTROL I. *Moderators: Hagit Navarro and Vaclav Stejskal.*

- 09:45-10:15 **Stejskal V., Vendl T., Aulicky R.** Overview of insecticide formulations used against storage pests.
- 10:15-10:30 **Götze M.C., Sakka M., Agrafioti P., Athanassiou C.G.** Resistance here, resistance there, resistance everywhere! - a dispute about phosphine and its use in the light of best management practice.

10.30 - COFFEE BREAK and POSTER SESSION II**

SESSION 4: CHEMICAL PEST CONTROL II. Moderators: Hagit Navarro and Vaclav Stejskal.

- 11:30-11:45 **Sotiroudas V., Agrafioti P., Kaloudis E., Bantas S., Athanassiou C.G.** Real time monitoring of phosphine and insect mortality in different storage facilities
- 11:45-12:00 **Glennon D.** Minimizing resistance in stored grains with web-based real-time phosphine concentration monitoring.
- 12:00-12:15 **Agrafioti P., Sotiroudas V., Bantas S., Athanassiou C.G.** Concentration-time relationships in phosphine fumigation on different species and strains - the UTH protocol.
- 12:15-12:30 **Brabec D., Norton A., Tilley M., Scheff D.** HPLC methods for quantifying depositions from aerosol pesticide applications.
- 12:30-12:45 **Gourgouta M., Athanassiou C.G.** Immediate and delayed efficacy of phosphine on different life stages of *Alphitobius diaperinus* Panzer and *Tenebrio molitor* L. (Coleoptera: Tenebrionidae).
- 12:45-13:00 **Kósa-Tass A., Bajomi D., Szilagyí J., Verwilghen F.** Sustainable storage of grains by implementing a novel protectant and versatile application technology.

13.00 - LUNCH

15.00-17:00 - CONFERENCE EXCURSION (Maritime Museum of Barcelona)

20.00 - CONFERENCE DINNER (Citrus. Passeig de Gracia, 44)

THURSDAY 6 OCTOBER 2022

SESSION 4: CHEMICAL PEST CONTROL III. Moderators: Hagit Navarro and Vaclav Stejskal.

- 08:30-08:45h **Nead-Nylander B., Thoms E., Hall W., Schmidt V.** Evaluation of the use of ProFume® fumigant (sulfuryl fluoride) on dried/cured tobacco leaf in storage facilities.
- 08:45-09:00h **Nead-Nylander B., Walse S., Corbett S., Rowley J., Buckley S.** Development of a scrubber for removal of sulfuryl fluoride following fumigation.
- 09:00-09:15h **Scheff D.S., Campbell J.F.** Evaluating Spinosad for use as a contact insecticide in grain bins and warehouses – A 12-month study.
- 09:15-09:30h **Navarro H., Navarro S., Inbari N.** Fumigation of edible cut flowers with ethyl formate mixed with CO₂.

SESSION 5: MODIFIED ATMOSPHERES AND PHYSICAL PEST CONTROL I. Moderators: Maria Otilia Carvalho and Cornel Adler.

- 09:30-09:45h **Adler C.** Efficacy of moderate heat against all stages of the tobacco beetle *Lasioderma serricorne* at controlled humidity.
- 09:45-10:00h **Machekano H., Mpofu P., Nyamukondiwa C.** Cold tolerance of stored product beetles; implications on low temperature-based commodity disinfestation.
- 10:00-10:15h **Labrot-Rhodes L., Campo E., Poujaud P.** Instrumentation for monitoring shocks suffered by a big-bag filled with seeds.
- 10:15-10:30h **Ocreto M.B., Fuertes L.A.P.** Monitoring rice storability using carbon dioxide and relative humidity sensors in gastight storage
- 10:30-10:45h **Roth T.** Why conventional disinfestation processes are problematic!

10.45 - COFFEE BREAK

SESSION 5: MODIFIED ATMOSPHERES AND PHYSICAL PEST CONTROL II. Moderators: Maria Otilia Carvalho and Cornel Adler.

- 11:15-11:30h **Sakka M.K., Athanassiou C.G.** Insecticidal effect of nitrogen on stored-product beetle populations with different susceptibility levels to phosphine in commercial chambers and silos.
- 11:30-11:45h **Spina G.** Evaluation of the Ekomille® CO₂ device as an animal welfare suppression system for rodent pests management.
- 11:45-12:00h **Walse S.S, Abrams A.E.** Controlled atmosphere as quarantine treatments for California nuts.
- 12:00-12:15h **Pons M.J., Sempere R., Mallén J., Guri S.** Controlled atmosphere with CO₂ as an alternative to phosphine treatment for pest control in dried figs.
- 12:15-12:30h **Guerra P., Moschini L., Conti G.** Practical test on the entomological efficacy of treatment in a protective modified atmosphere (MAP) using carbon dioxide (CO₂) in big bags.

12.30 - CONFERENCE CLOSING REMARKS

12.45 – END OF THE CONFERENCE

* **POSTER SESSION I** (TUESDAY 4 OCTOBER 2022, 10:30 – 11:30h)

Section 1. PEST PREVENTION DURING STORAGE AND TRANSPORTATION

1. **Agrafioti P., Lampiri E., Kaloudis S., Ioannidis P.M., Chalkidis V., Grigoriadou K., Athanassiou C.G.** Seasonal visualization of insect behavior in a feed mill.
2. **Agustí N., del Arco L., Castañé C., Riudavets J.** Development of a PCR-based method to discriminate between dead and living insect pest present in stored rice.
3. **Kaur, R.** Stored grain pests in India and their control.

Section 2. BIOLOGY OF STORED PRODUCT PESTS AND DISEASES, INSECTS AS FOOD

4. **Djebbi T., Soltani A., Chargui H., Mediouni-Ben Jemâa J.** Feeding preferences of *Rhyzopertha dominica* (Fabricius, 1792) (Coleoptera: Bostrichidae) in four Tunisian *Triticum durum* varieties.
5. **Gabryś B., Jankowski K., Kordan B.** Effect of physical characteristics of winter wheat *Triticum aestivum* L. grains on the development of grain weevil *Sitophilus granarius* L.
6. **Kordan B., Jankowski K., Gabryś B.** Development of the confused flour beetle *Tribolium confusum* Duv. on different products of millet *Panicum* sp.
7. **Ponce M.A., Kim T.N., Scully E.D., Morrison III W.R.** Foraging preference of cigarette beetle and rice weevil when dispersing to novel food patches with and without microbes.
8. **Vukajlović F., Predojević D., Gvozdenac S., Tanasković S., Perišić V., Bogdanović A.M., Pešić S.** Susceptibility of different dried fruits to infestation by *Plodia interpunctella* (Lepidoptera: Pyralidae) in laboratory conditions.

Section 3. BIOLOGICAL CONTROL, MATING DISRUPTION & NATURAL PRODUCTS

9. **Bohinc T., Jelnikar J., Batistič L., Trdan S.** Efficacy of inert dusts and plant powders against *Sitophilus oryzae* adults under laboratory conditions.
10. **Chrapaćienė S., Dėnė L., Rasiukevičiūtė N., Valiuškaitė A.** Improving the storage life of carrots by using natural product.
11. **Vendl T, Aulicky R., Stejskal V.** Using of botanical repellent extracts for protection of food packaging.

**** POSTER SESSION I (WEDNESDAY 5 OCTOBER 2022, 10:30 – 11:30h)**

Section 4. CHEMICAL PEST CONTROL.

- 12. Agrafioti P., Gourgouta M., Kateris D., Bochtis D., Athanassiou C.G.** Insecticidal efficacy of contact insecticides, applied in surfaces against two major stored-product insects.
- 13. Aulicky R., Frydova B., Vendl T., Stejskal V.** Evaluation of the occurrence of resistance in important species of storage pests to insecticides.
- 14. Glennon D.** Web based fenceline phosphine monitoring validates bystander safety in commercial operations with buffer zone integrity confirmed
- 15. Hnatek J., Travnickova E., Lebedova J., Aulicky R., Stejskal V.** Hydrogen cyanide-based fumigant (BLUEFUME®): Overview of formulations, registrations, and efficacy.
- 16. Kaloudis E., Brabec D., Agrafioti P., Athanassiou C.G., Campbell J., Scheff D.S., Bantas S., Sotiroidas V.** Fumigation modelling of hopper-bottom railcars.
- 17. Mavridis K., Sakka M.K., Riga M., Papapostolou K.M., Vontas J., Athanassiou C.G.** Development and application of molecular diagnostics for monitoring phosphine resistance in major stored product pests.
- 18. Mostoviak S., Mostoviak I.** Entomocomplex during storage, species composition of pests, methods of regulating their numbers.
- 19. Quinn E., Rubin A., Rapaport A., Trostanetsky A., Menahem A., Gottlieb D.** New evidence of phosphine resistance in stored product insects in Israel.

Section 5. PHYSICAL CONTROL, MODIFIED ATMOSPHERES

- 20. Guerra P., Montanari C., Moschini L., Conti G.** The "circular" and eco-sustainable disinfestation to counter Arthropods in food industry and poultry farms through high temperatures obtained from electric air heaters connected to generators powered by biomethane.
- 21. Gvozdenac S., Krstić M., Ilić A, Ovuka J., Zeremski T., Radović B., Prvulović D.** Biorational CO₂ fumigation of sunflower and common bean: insecticidal potential and effect on seed vitality and quality.
- 22. Iturralde-García R., Campaña-Chavarría C., Méndez-Mayboca F., Otero-León C., Arteaga G., Borboa-Flores J., Wong-Corral F.** Effectiveness of high CO₂ or N₂ modified atmospheres packaging on the control of *Zabrotes subfasciatus* in stored beans.
- 23. Wong-Corral F.J., Bourne-Murrieta L.R., Iturralde-García R.D., Castañé C., Riudavets J.** Effect of CO₂ on the mortality and fecundity of *Callosobruchus chinensis* (Coleoptera: Chrysomelidae).

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