

**Preliminary programme of the Conference of the IOBC/wprs (OILB/srop) Working Group on  
“Integrated Protection of Stored Products”, Ljubljana, Slovenia, 3-5 July 2017**

**Sunday 2 July, 2017 (M Hotel)**



- 16.00 – 19.30 Registration  
18.00 Welcome drink

**Monday 3 July, 2017 (Biotechnical Faculty, University of Ljubljana)**



- 8:00 Registration  
8:45 Opening ceremony (Miha HUMAR – dean of the Biotechnical Faculty, University of Ljubljana, Cristina CASTANÈ - liaison, Pasquale TREMATERRA – convenor of the Working Group, Stanislav TRDAN – local organizer)

**Methods of pest prevention during storage, transportation and handling of stored products**

Session Chair: *Jim THRONE* (USA); Keynote Speaker: *Paul FIELDS* (Canada)

- 9:15 Paul FIELDS **Role of Temperature in the Biology and Control of Stored Product Insects**  
9:45 Nicolas BAREIL **Grain cleaning as a management tool to control internal-feeding pests**  
10:00 Darka HAMEL **Available measures for control of stored product pests regarding integrated protection and research**  
10:15 Giuseppe SPINA **Experiences on the use of Ekontrol, remote control system, for real-time monitoring of rodent control stations**  
10:30 George OPIT, Frank ARTHUR, James CAMPBELL **The Feed the Future Innovation Lab for the Reduction of Post-Harvest Loss: Maize Post-Harvest Loss Mitigation in Ghana**  
10:45 Discussion  
11:00 *Coffee break*

### Natural products

Session Chair: Vlatka ROZMAN (Croatia); Keynote Speaker: Barbara CONTI (Italy)

- 11:30 Barbara CONTI **Natural products as biopesticides for sustainable foodstuff pest control**
- 12:00 Sonja GVOZDENAC, Dejan PRVULOVIĆ, Vojislava BURSIC, Snežana TANASKOVIĆ, Mladen TATIC, Jelena OVUKA, Filip VUKAJLOVIĆ **Insecticidal and antifeeding activity of several botanicals against *Rhyzopertha dominica* Fabricius**
- 12:15 Kazam ALI, Muhammad SAGHEER, Mansoor-ul-HASAN, Abdul RASHID, Muhammad SHAHID, Chaudhary Muhammad Shahid HANIF, Sana MALIK **Variation in Esterases and Phosphatases of *Tribolium castaneum*, *Trogoderma granarium* and *Sitophilus granarius* Exposed to Plant Extracts *Nicotiana tabacum* and *Eucalyptus globulus***
- 12:30 Stefano BEDINI, Francesca COSCI, Guido FLAMINI, Roberta ASCRIZZI, Tiziana LOMBARDI, Andrea BERTACCHI, Jessica GIRARDI, Barbara CONTI ***Juniperus macrocarpa*: a Mediterranean resource against stored food insect pests**
- 12:45 Vlatka ROZMAN, Zlatko KORUNIC, Josip HALAMIC, Anita LISKA, Renata BALICEVIC, Ines GALOVIC, Pavo LUCIC **The three-year development of new natural insecticide formulations based on inert dusts and botanicals in Croatia**
- 13:00 Soumaya HAOUEL-HAMDI, Oifa BACHROUCH, Mariam HEDJAL-CHEBHEB, Moez AMRI, Chokri MASSOUDI, Ezzeddine SAADAOU, Emna BOUSHIH, Jouda MADIOUNI-BEN JEMAA **Green clay aromatized powder formulation for controlling *Callosobruchus maculatus* (F.) on stored chickpea**
- 13:15 Stefano BEDINI, Francesca COSCI, Jessica GIRARDI, Barbara CONTI **Aromatic plant essential oils for the control of blowflies in the production of dry-cured meat**
- 13:30 Stefano BEDINI, Francesca COSCI, Jessica GIRARDI, Rossella BOCCHINO, Barbara CONTI **Selective activity of *Cinnamomum verum* essential oil against the rice weevils *Sitophilus oryzae* and its parasitoid *Lariophagus distinguendus* in post-harvest pest management**
- 13:45 Maha Ben ABADA, Jouda MADIOUNI BEN JEMAA **Postharvest control alternatives for the management of the moth *Ectomyelois ceratoniae* Zeller (Pyralidae) in Tunisia: Essential oil fumigation and its impacts on date quality**
- 14:00 Discussion
- 14:15 *Lunch (Biotechnical Faculty, University of Ljubljana)*

### Biological control of stored product pests

Session Chair: Agatino RUSSO (Italy); Keynote Speaker: Jordi RIUDAVETS (Spain)

- 15:15 Jordi RIUDAVETS **Future trends in Biological Control of stored product pests**
- 15:45 Rey D. ITURRALDE-GARCÍA, Jordi RIUDAVETS, Cristina CASTAÑÉ **Use of predatory mites for the control of bruchids on stored chickpeas and beans**
- 16:00 Mansoor ul HASAN, Qurban ALI, Muhammad ASGHAR, Shahzad SALEEM, Muhammad FAISAL **Response of *Callosobruchus chinensis* Linnaeus (Coleoptera: Bruchidae) to plant extracts and *Anisopteromalus calandrae* (Hymenoptera: pteromalidae), an ectoparasitoid**

- 16:15 Benjamin FÜRSTENAU, Monika HILKER **How to locate *Tribolium* larvae: Long-range attractants and contact cues mediate the olfactory host search of *Holepyris sylvanidis***
- 16:30 Zehra AYDIN, Ali A. IŞIKBER, M. KUBILAY, Özgür SAĞLAM, Inanç DOGANAY, Hasan TUNAZ **Efficacy of Turkish Diatomaceous Earth in Combinations with Entomopathogenic Fungus *Beauveria bassiana* (Bals.) Vuill. against *Rhyzopertha dominica* (F.)**
- 16:45 Christos G. ATHANASSIOU, Cristos I. RUMBOS, Maria SAKKA, Olivier POTIN, Clare STORM, Aoife B. DILLON **Delivering *Beauveria bassiana* with electrostatic powder for the control of stored-product beetles**
- 17:00 Muhammad SAGHEER, Mansoor-ul-HASAN, Zaheer Abbas GUL, Atif RAUF, Ali RAZA, Muhammad QASIM, Saqib WAQAS **Virulence of new formulations of *Metarhizium anisopliae* and *Beauveria bassiana* against *Sitophilus oryzae* under laboratory conditions**
- 17:15 Giulia GIUNTI, Orlando CAMPOLO, Vincenzo PALMERI **Behavioural responses of *Tribolium confusum* to rice kernels: role of intra- and inter-specific competition on VOC emissions and female chemotaxis**
- 17:30 Discussion
- 18:15 *Dinner (M Hotel – self-funding)*
- 19:00 Guided tour in Ljubljana old town (*optional*)

**Tuesday 4 July, 2017 (M Hotel)**



**Physical, chemical and other techniques for stored product pest control**

Session Chair: *George OPIT* (USA); Keynote Speaker: *Jim CAMPBELL* (USA)

- 8:30 Jim CAMPBELL **Mating Disruption for Management of Stored Product Insects: Principals and Practices**
- 9:00 V. SOTIROUDAS, P. AGRAFIOTI, C.G. ATHANASSIOU **Large-scale applications of phosphine in commercial facilities by using wireless phosphine sensors**
- 9:15 Barbara NEAD-NYLANDER, Ellen THOMS **Global uses for sulfuryl fluoride (ProFume® gas fumigant) for post-harvest pest control**
- 9:30 Mansoor ul HASAN, Qurban ALI, Habib ur REHMAN, Hafiz Usman SHAKIR, Shahzad SALEEM, Muhammad FAISAL **Influence of abiotic factors on the efficacy of insect growth regulators against *Trogoderma granarium* (Everts) (Coleoptera: Dermestidae)**
- 9:45 Cornel ADLER **Control of the granary weevil *Sitophilus granarius* (L., Col. Curculionidae) with vacuum**
- 10:00 Rizana MAHROOF, Barbara AMOAH, Jewel WRIGHTON **Acute and Delayed Toxicity Effects of Ozone on Internal and External Feeders of Stored Products**
- 10:15 Luciano SÜSS, S. SAVOLDELLI, G. CASSANI, F. LAMPUGNANI, P. FILIPPINI, A. PAPARATTO, A. MILIANI, L. SERRANI **Control of stored product insects with high pressure carbon dioxide treatments**

- 10:30 *Coffe break*
- 11:00 Qurban ALI, Mansoor ul HASAN, Shahzad SALEEM, Muhammad ZEESHAN, Najuf Awais ANJUM, Muhammad FAISAL **Combine effect of diatomaceous earth and insect growth regulators against *Trogoderma granarium* (Everts) (Coleoptera: Dermestidae)**
- 11:15 Kamil Emre KURTULUŞ, Nazife EROGLU YALCIN, Ahmet Güray FERIZLI, Mevlüt EMEKCI **Effectiveness of a Turkish Natural Diatomaceous Earth Formulation Against Rice Weevil (Coleoptera: Curculionidae) On Wheat and Paddy**
- 11:30 Mehmet A. GÜLTEKİN, Özgür SAĞLAM, Ali A. IŞIKBER **Insecticidal Efficacy of Turkish Diatomaceous Earth Deposits against Cowpea Weevil, *Callosobruchus maculatus* (Coleoptera: Chrysomelidae: Bruchninae) adults on chickpea**
- 11:45 Nazife EROGLU, Mevlut EMEKCI **Insecticidal Potential of a Turkish Natural Zeolite Formulation Enhanced with Silica Aerogel Against Confused Flour Beetle (Coleoptera: Tenebrionidae) For Short and Long Term Applications**
- 12:00 Magda M.A. SABBOUR **Role of the Imidacloprid and nanoimidacloprid on *Callosobruchus chinensis* and *Callosobruchus maculatus* (Coleoptera: Tenebrionidae) under store and laboratory conditions**
- 12:10 Magda M.A. SABBOUR **Pathogenicity of Imidacloprid and its nano against *Rhyzopertha dominica* (Coleoptera: Bostrichidae) under laboratory and store conditions**
- 12:20 Magda M.A. SABBOUR **The effect of Imidacloprid and nano Imidacloprid against *Sitophilus granarius* under laboratory and store conditions**
- 12:30 Shahzad SALEEM, L.J. MASON, M. HASAN, M. SAGHEER, Q. ALI, W. SAJID, A. MEHMOOD. **Fumigant insecticidal efficacy of higher concentrations of ozone gas (O<sub>3</sub>) towards *Tribolium castaneum* and *Cryptolestes ferrugineus***
- 12:45 Discussion
- 13:00 **Poster session (M Hotel)**  
Session Chair: Nickolas *KAVALLIERATOS* (Greece)
- 13:30 *Lunch (M Hotel – self-funding)*
- 14:00 Conference excursion

15:00 Port of Koper (presentation of the port, activities of the company DDD d.o.o., and Phytosanitary Inspection procedures)



18:00 Dinner at the Adria Ankaran Hotel



Wednesday 5 July, 2017 (M Hotel)



### Prevention of microflora infection and development of mycotoxins

Session Chair: Christos *ATHANASSIOU* (Greece), Keynote Speaker: Corrado *FANELLI* (Italy)

- 9:00 Corrado FANELLI **Biological effects of an exopolysaccharide of *Trametes versicolor***
- 9:30 Azeddine DRIOUICH, Romain CASTILLEUX, Marc ROPITAUX, Sophie BERNARD, Isabelle BOULOGNE, Marie-Laure FOLLET GUEYE, Maité VICRÉ **The root anti-microbial compounds as protectants for stored products**
- 9:45 Ana MAGRO, Anabela RAYMUNDO, Patrícia FRADINHO, Isabel SOUSA, Maria Otília CARVALHO **Hermetic storage of paddy rice: the impact of Relative Humidity on fungi infection and on rheology of the pastes**
- 10:00 Discussion

### Quarantine and regulatory issues

Session Chair: Shlomo *NAVARRO* (Israel); Keynote Speaker: Vaclav *STEJSKAL* (Czech Republic)

- 10:15 Vaclav STEJSKAL **Quarantine and control storage and package pests: past and present**
- 10:45 Frank ARTHUR **Susceptibility of *Trogoderma granarium* (Everts) to residual insecticides**
- 11:00 Shlomo NAVARRO, Hagit NAVARRO **A device for quick evaluation resistance of packaging films to penetration by storage insects**
- 11:15 *Coffee break*
- 11:45 Samuel A. BABARINDE, Timothy A. ADEBAYO, Adetayo D. ADELEYE, Afeez IGE, Johnson A. ADEOLU **How pestiferous are *Sitophilus zeamais* Motschulsky and *Tribolium castaneum* Herbst against dried okra [*Abelmoschus esculentus* (L.)] fruit?**
- 12:00 Paraskievi AGRAFIOTI, V. SOTIROUDAS, C. GÖTZE, J. ALLEGRA, G. JACOB, C.G. ATHANASSIOU **Evaluation of phosphine resistance in stored-product insects from Greece using two assessment methods**
- 12:15 Charles E. KONEMANN, George P. OPIT, Hubhachen ZHAORIGETU **Further Demonstration of Widespread Phosphine Resistance in *Cryptolestes ferrugineus* (Coleoptera: Laemphloeidae) in Oklahoma**
- 12:30 Ali A. İŞIKBER, Özgür SAĞLAM, Hüseyin BOZKURT, İnanç Ş. DOĞANAY **Determining Phosphine Resistance in *Sitophilus oryzae* (L.) Populations From Different Geographical Regions of Turkey**
- 12:45 Erhan KOÇAK, Abdullah YILMAZ, Yaşın Nazim ALPKENT, Saıt ERTÜRK **Phosphine resistance to some coleopteran pests in stored grains across Turkey**
- 13:00 Abdullah YILMAZ, Erhan KOÇAK **Phosphine resistance in the lesser grain borer, *Rhyzopertha dominica* (F.) (Coleoptera: Bostrychidae) populations from Turkey**

- 13:15 Maria SAKKA, Jonny ALLEGRA, Jakob GERHARD, Carolin GÖTZE, Vasilis SOTIROUDAS, Christos G. ATHANASSIOU **Evaluation of phosphine tolerance in stored product insects in Europe**
- 13:30 Discussion
- 13:45 *Lunch (M Hotel – self-funding)*

### Wood-boring, urban and museum pests

Session Chair: Cornel ADLER (Germany), Keynote Speaker: Pascal QUERNER (Austria)

- 14:45 Pascal QUERNER **Integrated Pest Management in the protection of cultural heritage: museums, archives and libraries**
- 15:15 Sara SAVOLDELLI, F. CAPPITELLI, P. CORTESI, M. SARACCHI, F. TROIANO, F. VILLA **Damages of *Gastrallus pubens* Fairmaire (Coleoptera Anobiidae) in a library**
- 15:30 Claudia SOTGIA, Maria Cristina REGUZZI, Michela PANINI, Olga CHIESA, Alessia BERZOLLA, Elisabetta CHIAPPINI, Emanuele MAZZONI **Five years of preventive pest management in the Historical Archives of the Diocese of Lodi**
- 15:45 Hagit NAVARRO, Shlomo NAVARRO **Commercial Application of Non Chemical Fumigation in Museums**
- 16:00 Discussion

### Future trends on all aspects of storage pest control

Session Chair: Ali ISIKBER (Turkey), Keynote Speaker: Frank ARTHUR (USA)

- 16:15 Frank ARTHUR **Current and Future Trends in Stored Product Entomology**
- 16:45 Lidia LIMONTA, S. SAVOLDELLI, P. GIRGENTI, D.P. LOCATELLI **Development of *Tribolium castaneum* on dust**
- 17:00 George OPIT, Abena OCRAN, Kandara SHAKYA **Survival of stored-product psocids (Psocoptera: Liposcelididae) at 43% and 50% relative humidity**
- 17:15 L. DRIES-ZHANG, Frank H. ARTHUR, G. J. DAGLISH, Christos G. ATHANASSIOU **The Journal of Stored Products Research: the living history of stored product protection**
- 17:30 Julia BELLO-BRAVO **Scalable Educational Strategies for Low-literate Learners in Developing Nation Countries as it Relates to Integrated Protection of Stored Products (IPSP)**
- 17:45 Discussion
- 18:00 Conclusions

POSTERS

**Physical, chemical and other techniques for stored product pest control**

Yeter BİLGİLİ, Ali A. İŞIKBER\*, Hasan TUNAZ, Christos G. ATHANASSIOU, Özgür SAĞLAM, Inanç DOĞANAY, M. Kubilay ER **Rapid Insect Disinfestation of Dried Figs by Fumigation of Propylene Oxide as Alternative to Methyl Bromide**

Marijana PRAŽIĆ GOLIĆ, Petar KLJAJIĆ, Goran ANDRIĆ **Residual efficacy of cypermethrin and pirimiphos-methyl against *Sitotroga cerealella* (Olivier) in wheat grain**

Francisco J. WONG-CORRAL, Jordi RIUDAVETS, Jesús BORBOA-FLORES, Rey D. ITURRALDE-GARCÍA **Use of modified atmospheres for the control of chickpea weevil, *Callosobruchus maculatus* Fab. and its effect on commercial quality of grain and seed in Mexico**

Radek AULICKY, Vlastimil KOLAR, Jan PLACHY, Vaclav STEJSKAL **The efficacy CA of the field test on the developmental stage of four species primary pests**

Claudia SOTGIA, Maria Cristina REGUZZI, Michela PANINI, Olga CHIESA, Alessia BERZOLLA, Elisabetta CHIAPPINI, Emanuele MAZZONI **Larvae of stored-product pests exposed to controlled atmosphere enriched with nitrogen and not minimal content of oxygen**

SUMA P., LA PERGOLA A., RUSSO A., CHINNICI G., BELLA S., PECORINO B., PAPPALARDO G. **An entomological and economic analysis of heat treatment in italian flour mills**

Nickolas G. KAVALLIERATOS, John CHRONOPOULOS, Dimitrios Ch. KONTODIMAS, George KARACHALIOS, Luca BERNABEI **Effect of microwave treatment with a new magnetron prototype on the mealworm beetle, *Tenebrio molitor* L. (Coleoptera: Tenebrionidae) and the rice weevil, *Sitophilus oryzae* (L.) (Coleoptera: Curculionidae)**

Hasan USLU, Mehmet KUBILAY, Ali Arda İŞIKBER, Hasan TUNAZ **Effects of Temperature and Relative Humidity on the Efficacy of *Beauveria bassiana* and Diatomaceous Earth Combine Application Against *Sitophilus oryzae* Adults**

Önder BAYTEKIN, Özgür SAĞLAM\* **Insecticidal Efficacy of Turkish Diatomaceous Earth Deposits in Stored Paddy against Rice Weevil (*Sitophilus oryzae* L.)**

Petar KLJAJIĆ, Goran ANDRIĆ, Marijana PRAŽIĆ GOLIĆ, Marija STEVANOVIĆ, Slavica GAŠIĆ **Effects of bifenthrin formulation with natural zeolite on *Sitophilus oryzae* (L.), *Rhyzopertha dominica* (F.) and *Tribolium castaneum* (Herbst) in wheat grain**

Petr A. YAKOVLEV, Yakov B. MORDKOVICH, Natalia N. KARAMYSHEVA, Ekaterina G. PHETYUKHINA **Efficacy of diatomaceous earth against stored product pests and its impact on the quality of the grain**

Tanja BOHINC, Jerneja JELNIKAR, Aleksander HORVAT, Petar KLJAJIĆ, Goran ANDRIĆ, Marijana PRAŽIĆ GOLIĆ, Stanislav TRDAN **Research on insecticidal efficacy of three different wood ashes against maize weevil (*Sitophilus zeamais* Motschulsky, Coleoptera, Curculionidae) adults under laboratory conditions**

Tanja BOHINC, Aida DERVIĆ, Aleksander HORVAT, Petar KLJAJIĆ, Goran ANDRIĆ, Marijana PRAŽIĆ GOLIĆ, Stanislav TRDAN **Effects of natural and synthetic zeolites against maize weevil (*Sitophilus zeamais* Motschulsky, Coleoptera, Curculionidae) adults under laboratory conditions**

Filip VUKAJLOVIĆ, Dragana PREDOJEVIĆ, Vesna PERIŠIĆ, Snežana PEŠIĆ **Efficacy of natural diatomaceous earth products from Serbia against the fifth larval instar of *Plodia interpunctella* (Lepidoptera: Pyralidae)**

Stanislav TRDAN, Tanja BOHINC, Martin SNOJ, Marijana PRAŽIĆ GOLIĆ, Petar KLJAJIĆ, Goran ANDRIĆ  
**Assessment of the efficacy of spinetoram and spinosad against adults of three *Sitophilus* species reared on four different winter wheat varieties**

### **Methods of pest prevention during storage, transportation and handling of stored products**

Snežana TANASKOVIĆ, Sonja GVOZDENAC, Filip VUKAJLOVIĆ, Snežana PEŠIĆ, Kristina MILJKOVIĆ, Dragana PREDOJEVIĆ  
**Losses of walnut, almond and hazelnut kernels as a result of *Plodia interpunctella* larval feeding**

Sonja GVOZDENAC, Snežana TANASKOVIĆ, Jelena OVUKA, Vladimir MIKLIČ, Mladen TATIĆ, Dejan PRVULOVIĆ, Filip VUKAJLOVIĆ  
***Plodia interpunctella* Hübner – primary or secondary pest of sunflower seeds in Serbia**

S. Ch. PAPADOPOULOU, M. K. KORDISTA  
**The infestation’s preference of wheat seeds by *Sitophilus oryzae* L. (Coleoptera: Curculionidae) in different varieties**

### **Biological control of stored product pests**

W.R. MORRISON III, T.P. KUCHAR, J.C. BERGH, J. WALGENBACH, T.C. LESKEY  
**Evaluation of pheromone-baited traps for monitoring and management of nuisance pest problems associated with the invasive brown marmorated stink bug**

Alonso ARROYO, Laura NIÑO, Artiom CARMONA, Paulo BESERRA, Gerardo MEDINA, Xavier LÉRY, Miguel LÓPEZ-FERBER  
**Biological and molecular analysis of an isolated *Granulovirus-Tecia solanivora* for protection of stored potatoes collected in The Andes of Venezuela**

Salvatore GUARINO, Ezio PERI, Stefano COLAZZA, Mokhtar ABDULSATTAR ARIF, Maurizio SAJEVA, Giuseppe BRAGHIERI, Nadia ZINI, Marco CAIMI, Francesca TAVELLA, Pietro ZITO  
**Electrophysiological and behavioral studies to test attractants semiochemicals for *Stegobium paniceum* L. (Coleoptera: Anobiidae)**

Mehmet KUBILAY, Ali Arda IŞIKBER, Hasan TUNAZ  
**Effect of collection season, host species and incubation on the virulence of *Beauveria bassiana* isolates from Adana, Turkey against *Rhyzopertha dominica* adults**

Zdeňka SVOBODOVÁ, Oxana SKOKOVÁ HABUŠTOVÁ, Konstantin S. VINOKUROV  
**Why is Cry3Aa toxin insufficiently effective against some tenebrionid storage pests?**

Ouarda BENKHELLAT-ADJAOUD, Assia SLAMANI, Lydia MOUNSI  
**Potential of *Anisopetomalus calandreae* (Hymenoptera: Pteromalidae) to suppress population of *Callosobruchus maculatus* (Coleoptera: Bruchidae) in Algeria**

Maria DEL MAR MORALES-AMARAL, Enric VILA RIFÀ  
***Amblyseius swirskii* for controlling dehydrated fruit pest**

Marco AMANTE, Pompeo SUMA, Matthias SCHÖLLER, Agatino RUSSO  
**The Bethyilidae (Hymenoptera): a tool for biological control programmes in food industries**

M. SALERNO, G. MAZZEO, P. SUMA, A. RUSSO, G. PELLIZZARI, F. PORCELLI  
**Regular introduction of living *Aspidiella hartii* (Cockerell 1895) (Hemiptera Diaspididae) on infested igname (*Dioscorea* spp.) tubers, imported as ethnic food in EPPO area**



## Natural products

Miloš PETROVIĆ, Danijela KOJIĆ, Aleksandra POPOVIĆ, Jovana ŠUĆUR, Tijana STOJANOVIĆ, Milica AĆIMOVIĆ, Đorđe MALENČIĆ **Catalase activity in two stored product pests exposed to *Anethum graveolens* L. essential oil**

Goran ANDRIĆ, Petar KLJAJIĆ, Marijana PRAŽIĆ GOLIĆ **Efficacy of oxymatrine against *Sitophilus granarius* (L.), *Rhyzopertha dominica* (F.) and *Tribolium confusum* Du Val in wheat grain**

Olfa BACHROUCH, Abdelkarim AYDI, Iness JABRI KAROUI, Soumaya HAOUEL HAMDY, Jazia SRITI, Nithal SALEM, Kamel MSAADA, Majdi HAMAMI, Emna BOUSHIH, Manef ABDERRABA, Ferid LIMAM, Jouda MÉDIOUNI BEN JEMAA **Fumigation with *Pistacia lentiscus* essential oil: efficacy for the control of *Tribolium castaneum* and impact on the wheat flour quality**

M. HEDJAL EP CHEBHEB, A. KELLOUCHE, Jouda MEDIOUNI BEN JEMAA, Larbi Mohamed KHOUDJA **Fumigant Effect of Tunisian Essential Oils on Hidden *C. maculatus* Individuals**

Jarongsak PUMNUAN, Atjima NUCHPO, Chunya KONGRITH, Ammorn INSUNG **Effects of clove and cinnamon essential oils on stored product quality and population growth of the mold mite (*Tyrophagus communis*) and the predatory mite (*Cheyletus* sp.)**

E.N. NUKENINE, C. SAIDOU, D. NANGUIANAN D., K.H. TOFEL, K.H., C. ADLER **Efficacy of methanolic extract and essential oil of *Lippia adoensis* (Hochst. ex Walp.) against stored Bambara groundnut pest, *Callosobruchus maculatus* (Coleoptera: Chrysomelidae)**

## Wood-boring, urban and museum pests

Mehmet Ramazan RİŞVANLI, Özgür SAĞLAM, Hasan TUNAZ, Ali Arda IŞIKBER, Kadir ÖZCAN, Mehmet Kubilay ER **Determination of Residual Contact Toxicity of Semi-Synthetic Spinosyn Insecticide, Spinetoram Against 3-4 Nymph Stages of American Cockroaches, *Periplaneta americana* L.**

Judith AUER, Deborah SCHWEINFEST, Alexander KASSEL **A new biological control method for the common furniture beetle: Parasitic wasps versus Anobiidae**

Yasemin Bengü ŞAHAN, Ali A. IŞIKBER, Hasan TUNAZ, M. KUBILAY **Fumigant toxicity of plant essential oils and selected monoterpenoid components against 1-3 nymph stages of American cockroach, *Periplaneta americana* (Dictyoptera: Blattellidae)**

Olga CHIESA, Michela PANINI, Maria Cristina REGUZZI, Claudia SOTGIA, Emanuele MAZZONI **Evaluation of novel ecofriendly synergists for insecticide formulations against *Blattella germanica* (L.)**

Maria Cristina REGUZZI, Claudia SOTGIA, Gabriele CANALI, Michela PANINI, Olga CHIESA, Alessia BERZOLLA, Elisabetta CHIAPPINI, Giulia PEZZINI, Emanuele MAZZONI **Preventive conservation and IPM: their sustainability for cultural properties protection**

Maria Cristina REGUZZI, Claudia SOTGIA, Michela PANINI, Olga CHIESA, Valentina CINIERI, Emanuele ZAMPERINI, Emanuele MAZZONI **Insect pests of insulation wool panels**

## Prevention of microflora infection and development of mycotoxins

L. MONCINI, S. SARROCCO, G. PACHETTI, A. MORETTI, M. HAIDUKOWSKI, G. VANNACCI **Grain storage under N<sub>2</sub> controlled atmosphere: An eco friendly method against mycotoxigenic fungi and pests**

Brankica TANOVIĆ, Jovana HRUSTIĆ, Milica MIHAJLOVIĆ, Goran DELIBAŠIĆ **Effects of antagonistic bacteria and their mixtureS on *Monilinia fructicola***

### **Future trends on all aspects of storage pest control**

Soumaya HAOUEL HAMDI, Meriem LABIDI, Mariam HEDJAL-CHEBHEB, Moez AMRI, Ali OUJI, Emna BOUSHIH, Jouda MEDIOUNI BEN JEMÂA **Could host adaptation and host alternation be suitable alternatives for safer control of the cowpea beetle *Callosobruchus maculatus* during storage?**

D. R. THAKUR **Eco-friendly management of stored product pests – a case of stored legumes pest**

S. PAPADOPOULOU, C. CHRYSOHOIDIS **New observations in food preference of *Oryzaephilus surinamensis* (L.) (Coleoptera: Silvanidae)**

Primož ŽIGON, Jaka RAZINGER, Špela MODIĆ **Seasonal dynamics of lepidopteran stored grain pests in Central Slovenia**

Aleksandra IGNJATOVIĆ ĆUPINA, Petar KLJAJIĆ, Goran ANDRIĆ, Marijana PRAŽIĆ GOLIĆ, Mihaela KAVRAN, Dušan PETRIĆ **The effect of various grains to adult body size and life cycle parameters of Angoumois grain moth (*Sitotroga cerealella* Oliv.)**

Suliman A. I. ALI, Mory M. DIAKITE, Saqib ALI, Man Qun WANG **Effects of the antennal sensilla distribution pattern on the behavioral responses of *Tribolium castaneum* (Coleoptera: Tenebrionidae)**

Snežana TANASKOVIĆ, Sonja GVOZDENAC, Filip VUKAJLOVIĆ, Snežana PEŠIĆ, Kristina MILJKOVIĆ, Dragana PREDOJEVIĆ **The impact of walnuts, almonds and hazelnuts as a nutrient medium on larval development of *Plodia interpunctella***

Mohammed Z. KHALAF, Iman M. AHMED, Falah H. NAHER **The effect of time's exposure and thickness of material on efficacy of microwave energy in some different stages for some storage insects**