

6th INTERNATIONAL ENTOMOPHAGOUS
INSECTS CONFERENCE

The logo for the 6th International Entomophagous Insects Conference (IEIC 6). It features the letters 'IEIC' in a large, bold, dark grey font. To the left of the 'I' is a stylized dark grey silhouette of a church spire with a white window. To the right of the 'C' is a red illustration of a beetle with its legs raised, positioned as if it is part of the number '6'.

Perugia, Italy, 9-13 September 2019

CONFERENCE PROGRAM



(Venue: Monumental complex of San Pietro Abbey, Borgo XX Giugno, Perugia)



UNIVERSITÀ DEGLI STUDI
DI PERUGIA



Monday, 9 September 2019

17:00-19:00 Registration

19:00-21:00 Opening Ceremony and Welcome Reception

Tuesday, 10 September 2019

08:00-14:50 Session 1. Behaviour

Chairs: Ian Hardy, Louise Vet

08:00-08:30 Keynote lecture

Abram, Paul. Disconnects between parasitoid fitness and biological control performance

08:30-10:15 Oral presentations

08:30 **van Lenteren, Joop C.** Insect functional responses: often measured, but a poor predictor of entomophagous capacity

08:45 **Wajnberg, Eric.** Simultaneous effect of host and food availability on parasitoid optimized life history traits based on a three dimensional trade-off surface

09:00 **Takasu, Keiji.** Host- and food-foraging of parasitoids: Effects of hunger state and the distribution of food and hosts

09:15 **Segoli, Michal.** Ecological tragedy: the collection of parasitized caterpillars by potter wasps

09:30 **de Boer, Jetske.** Boy or girl? Host size matters to aphid hyperparasitoids

09:45 **Hardy, Ian.** Effects of kinship on parasitoid sex ratios

10:00 **Khadar, Abdi Mohamed.** Co-foundresses relatedness and dangerous host suppression in a quasi-social parasitoid

10:15-10:35 Coffee break

10:35-12:50 Oral presentations

10:35 **Cingolani, M. Fernanda.** Interspecific interactions between egg parasitoids: foraging behavior of two egg parasitoids of the stink bug *Piezodorus guildinii* (Hemiptera: Pentatomidae)

10:50 **Velasco-Hernandez, Maria.** Exposure to neonicotinoid stimulates aggression in parasitoid contests

11:05 **Mathiron, Anthony.** When hormones get involved! Ecdysteroids affect female reproductive status and outcome of contest over host in a solitary parasitoid wasp

11:20 **Nakamura, Satoshi**. The microtype tachinid, *Pales pavidus* (Meigen) – escaping from host's immune responses resulting in different parasitization rates between host sexes

11:35 **Colazza, Stefano**. Invasive insect herbivores can disrupt semiochemical-mediated tritrophic interactions: effects on efficacy of native egg parasitoids

11:50 **Ismail, Mohannad**. Tritrophic interactions of plant host origin-herbivore insects-natural enemies

12:05 **Bueno, Vanda Helena Paes**. Searching behaviour and predation of *Tuta absoluta* eggs by Neotropical mirid predators on tomato plants with sticky hairs

12:20 **Rebora, Manuela**. Oviposition site selection and biomechanics of egg adhesion to artificial and natural substrates in *Propylea quatuordecimpunctata* and *Harmonia axyridis* (Coleoptera, Coccinellidae)

12:35 **Parent, Jean-Philippe**. Disturbance effects of non-specific substrate-borne vibrations on parasitoid wasps and their hosts

12:50-14:20 Lunch

14:20-14:50 Oral presentations

14:20 **Kindlmann, Pavel**. Population dynamics of aphid – natural enemy system seen as a metapopulation inhabiting two types of sites: trees and herbs

14:35 **Štípková, Zuzana**. How much is aphid population dynamics affected by their natural enemies?

14:50-17:25 Session 2. Systematics and Biodiversity

Chairs: Donald Quicke, Alex Gumovsky

14:50-15:20 Keynote speaker

Polaszek, Andrew. A morphological and molecular study of the parasitoid genus *Megaphragma* (Chalcidoidea: Trichogrammatidae) – among the world's smallest insects

15:20-16:05 Oral presentations

15:20 **Quicke, Donald**. Get on your hands and knees and find out when is a braconid not a braconid? When it's an ichneumonid

15:35 **Bon, Marie-Claude**. A new light in the diversity of the *Aprostocetus* egg parasitoids associated with the invasive viburnum leaf beetle, *Pyrrhalta viburni*, using an integrative approach

15:50 **Seehausen, M. Lukas**. Host specificity of the *Ganaspis* cf. *brasiliensis* species complex in tri-trophic systems and implications for classical biological control of *Drosophila suzukii*

16:05-16:25 Coffee break

16:25-17:25 Oral presentations

16:25 **Sforza, René F.H.**. Abra-Bagrada, the magic of foreign exploration for egg parasitoids

16:40 **Zriki, Ghais**. Identifying candidate predators amongst spontaneous arthropods in French layer farms to control the poultry red mite *Dermanyssus gallinae*

16:55 **Senouci, Hayet**. Zygoptera of the height Mina valley in Tiaret (Algeria)

17:10 **Yalles Satha, Amina**. New data from the Kebir-Rhumel watershed (Northeastern Algeria)

17:25-18:25 Poster Exhibition

Behaviour

Ashouri, Ahamad. How does *Wolbachia* infection cause less diapause percentage in *Trichogramma brassicae*?

Gumovsky, Alex. Mine microcosmos: immature morphology and life histories of Eulophidae (Hymenoptera, Chalcidoidea) parasitizing the Horse Chestnut Leafminer (*Cameraria ochridella*)

Hegazi, Esmat. Persistent low-level diapause and generation effect in *Microplitis rufiventris* wasps under optimal mass rearing conditions

Nakashima, Yoshitaka. Foraging decisions of insect parasitoids under the threats of intraguild predation

Pardo, Pietro. Exploring the influence of neonicotinoid exposure on parasitoid egg loads

Ramadan, Mohsem. Male Impact on Reproductive Performance: Case Study of *Diachasmimorpha tryoni* (Hymenoptera: Braconidae), Larval Parasitoid of Tephritid Fruit Flies

Rattanapun, Wigunda. Effects of larval stage and host species on host preference of *Bracon hebetor* Say (Hymenoptera: Braconidae)

Saitta, Valerio. Neonicotinoid exposure, parasitoid behaviour and life-history)

Senouci, Hayet. Overview of the behavior of *Calopteryx haemorrhoidalis* (Vander Linden, 1825) in the height Mina valley of Tiaret (Algeria)

Velasco-Hernandez, Maria. Interspecific contests between beneficial natural enemies: brood guarding parasitoids versus foraging predators

Systematics and Biodiversity

Geng, Hui. A preliminary morphological and molecular study of the parasitoid genus *Encarsia* (Chalcidoidea: Aphelinidae) of China and SE Asia

Segoli, Michal. The impact of terrestrial oil pollution on arthropods associated with Acacia trees in Ivrona Nature Reserve, Israel

Suwanwaree, Pongthep. Aquatic entomophagous insect survey in natural protected area of Sirinthorn Dam, Thailand

Volkoff, Anne-Nathalie. The virus particles of *Bathyplectes* spp., parasitoids of the alfalfa weevil, are related to ichnoviruses

Zaabta, Insaf. Ecology of *Lepidosaphes beckii* (Hom. Diaspididae) and the impact of its parasitoid *Aphytis lepidosaphes* (Hym. Aphelinidae) on orange trees in Rouiba

Chemical Ecology

Cruz-Miralles, Joaquín. Can zoophytophagous phytoseiids induce plant defense responses of interest for crop protection?

Jaques, Josep A. Plant genotype and diet specialization affect the response of *Tetranychus urticae* natural enemies to infestation

Kapranas, Apostolos. The effect of plant virus infection on host location behavior and parasitism success in aphid parasitoids

Komatsuzaki, Suguru. Volatile components from tea leaf attract egg-larval parasitoid *Ascogaster reticulata*

Salerno, Gianandrea. Ability of Hymenoptera parasitoids to respond to different concentrations of CO₂

Sevarika, Milos. Analysis of the antennal structures of the predatory ladybug *Harmonia axyridis*

Wednesday, 11 September 2019

08:00-11:50 Session 3. Chemical Ecology

Chairs: Ted Turlings, Stefano Colazza

08:00-08:30 Keynote speaker

Ruther, Joachim. Evolution of insect sex pheromones – lessons from parasitic wasps

08:30-10:15 Oral presentations

08:30 **Rondoni, Gabriele.** Using semiochemicals for parasitoid recruitment: a meta-analysis

08:45 **Turlings, Ted.** Whiteflies can fool their host plants, but not their parasitoids

09:00 **Fatouros, Nina.** Genotypic and phenotypic variation of *Trichogramma* egg parasitoid attracting volatiles induced by butterfly oviposition in Brassicaceae

09:15 **Pashalidou, Foteini.** To be in time: egg deposition enhances plant-mediated detection of young caterpillars by parasitoids

09:30 **Segura, Diego.** Multiple approach to unravel chemical cues used by *Diachasmimorpha longicaudata* during host searching: behavioral, electrophysiological and gene expression studies

09:45 **Yoneya, Kinuyo.** The olfactory response of *Nesidiocoris tenuis* to eggplants uninfested and infested by *Thrips palmi* and conspecifics

10:00 **Silva, Diego**. Response of mirid predators to synthetic zoophytophagous-induced plant volatiles

10:15-10:35 Coffee break

10:35-11:50 Oral presentations

10:35 **Cusumano, Antonino**. Hyperparasitoids exploit herbivore-induced plant volatiles during host location to orient themselves in a multi-parasitoid multi-herbivore environment

10:50 **Malek, Robert**. *Trissolcus japonicus* short range foraging behavior: implications for host preference and classical biological control

11:05 **Peri, Ezio**. Adaptive responses of an egg parasitoid to substrate-borne semiochemicals from an invasive and non-associated host

11:20 **Bertoldi, Valeria**. Maladaptive effects of an egg parasitoid conditioning with cues of a non-associated host

11:35 **Shaltiel-Harpaz, Liora**. Biological control without a single bite: the case of the fig wasp *Blastophaga psenes* and the black fig fly *Silba adipata*

11:50-18:10 Session 4. Population, Community and Landscape Ecology

Chairs: Eric Wajnberg, Ezio Peri

11:50-12:20 Keynote speaker

Andow, David. Predators and Vegetational Diversity: Coccinellids in Maize and Soybean

12:20-13:05 Oral presentations

12:20 **Herz, Annette**. Is biodiversity of parasitoid Hymenoptera affected by production management in German apple orchards?

12:35 **Alvarez-Baca, Jeniffer Katherine**. Do alternative hosts on cover-crops habitats enhance biological control?

12:50 **Yano, Eizi**. Evaluation of the banker plant system for the omnivorous predator *Nesidiocoris tenuis* using a mathematical model

13:05-14:35 Lunch

14:35-16:05 Oral presentations

14:35 **Alfaro-Tapia, Armando**. Structure of aphid-parasitoid assemblages: Effect of latitudinal gradient on cereal crops

14:50 **Benrey, Betty**. Parasitoids of leaf herbivores and seed beetles can enhance the fitness of wild lima bean plants

15:05 **Coll, Moshe**. Pollen and prey consumption by *Coccinella septempunctata* in the field

15:20 **Foronda, García Jesús**. Aphid-ant mutualism: the influence of *Tapinoma ibericum* on *Aphis gossypii* control by parasitoids

15:35 **Grez, Audrey**. Composition and functional traits of coccinellid assemblages in greenspaces are filtered by urbanization

15:50 **Jeavons, Emma**. Intra-field floral resources alter aphid parasitoid communities and associated trophic webs

16:05-16:25 Coffee break

16:25-18:10 Oral presentations

16:25 **Martel, Véronique**. Studying the impact of the early intervention strategy against the spruce budworm on the parasitoid community using a DNA-based diagnostic tool

16:40 **Volkoff, Anne-Nathalie**. Western European populations of the ichneumonid wasp *Hyposoter didymator* belong to a single taxon

16:55 **Pires, Paula Debora**. Testing the enemy release hypothesis for the invasive ladybug *Harmonia axyridis* in Brazil

17:10 **Zaviezo, Tania**. The big picture: Long-term local and regional changes of an invasive natural enemy and impacts on resident coccinellid assemblages

17:25 **Falcó-Garí, José Vicente**. Torymid and Eupelmid parasitoid wasps and a potential Malachiid predator related to Mantid oothecae in Spain

17:40 **Peris-Felipo, Francisco**. Parasitoid and predator complex associated to the wood-borers beetles of the maritime juniper *Juniperus macrocarpa* in Eastern Spain

17:55 **Hammami, Sonia**. Population dynamic of egg parasitoids of *Orgyia trigotephras* Boisduval 1829 (Erebidae, Lymantriinae) in Tunisia

Thursday, 12 September 2019

08:00-16:05 Session 5. Biological Control and IPM

Chairs: Tim Haye, Luciana Tavella

08:00-08:30 Keynote speaker

Heimpel, George. Linking parasitoid nectar feeding and dispersal in conservation biological control

08:30-10:15 Oral presentations

08:30 **Moffat, Chandra**. Rethinking biological control programs as planned invasions

08:45 **Veronesi, Emiliano Rinaldo**. Better biological control in glasshouses: synergies between biological control agents from different guilds and floral resources

09:00 **Desurmont, Gaylord**. Ecology of the egg parasitoid *Aprostocetus* sp., a potential biological control agent of the viburnum leaf beetle *Pyrrhalta viburni*

09:15 **Fortuna, Taiadjana**. Environmental risk assessment of the introduction of a biocontrol agent against the corn stem borer *Sesamia nonagrioides*

09:30 **Martel, Guillaume**. Catch me if you can: is bagrada bug able to escape its parasitoid?

09:45 **Morgan, David**. Biological Control of the Asian Citrus Psyllid in California

10:00 **Withers, Toni**. Behavioural observations in both no-choice and choice tests provide reassurance against the outliers that invariably occur within host range testing

10:15-10:35 Coffee break

10:35-13:05 Oral presentations

10:35 **Kruidhof, Marjolein**. Effect of LED spectrum on pests and natural enemies

10:50 **Pickett, Charles**. New Insights into Predation through Imaging

11:05 **Cristofaro, Massimo**. Is it possible to use SIT in combination with biological control to manage *Halyomorpha halys* and other pentatomids?

11:20 **Benfekih, Leïla**. Biocidal activity of *Eucalyptus globulus* leaf essential oil against *Scymnus subvillosus* Goeze: implications for biological aphids control with phytopesticide

11:35 **Pallini, Angelo**. Integrating biological control practices to improve *T. urticae* management in strawberry crops

11:50 **Lin, Gongyu**. Understanding the process of disease transmission from predatory mites to prey for biological control

12:05 **Maistrello, Lara**. Augmentative release of *Anastatus bifasciatus* for the biological control of the invasive *Halyomorpha halys* in Italy

12:20 **Dindo, Maria Luisa**. Interactions between the box tree moth *Cydalima perspectalis* (Walker) and the tachinid parasitoid *Exorista larvarum* (L.)

12:35 **Duarte, Gonçalo**. Intraguild predation among three species of mirid bugs on tomato

12:50 **Golsteyn, Laura**. Predation and reproduction by the predatory ladybird *Cryptolaemus montrouzieri* on the mealybugs *Pseudococcus longispinus* and *Planococcus citri*.

13:05-14:35 Lunch

14:35-16:05 Oral presentations

14:35 **Ingegno, Barbara Letizia**. Predation efficacy of *Macrolophus pygmaeus* on eggs and larvae of *Chrysodeixis chalcites*

14:50 **Kaliuzhna, Maryna**. Rivalry between two *Trichogramma* species: challenges of biocontrol in organic agriculture of Ukraine

15:05 **Lupi, Daniela**. Rice moth, *Corcyra cephalonica* Stainton (Lepidoptera: Pyralidae) as a new factitious host for *Sclerodermus brevicornis* (Hymenoptera: Bethyridae)

15:20 **Moraglio, Silvia Teresa.** Laboratory evaluation of parasitism on *Halyomorpha halys* by European egg parasitoids (Hymenoptera: Scelionidae)

15:35 **Rahim, Nouredine.** First Record of natural enemies of Cedar Processionary Moth, *Thaumetopoea bonjeani* (Lepidoptera: Notodontidae) in Algeria

15:50 **Venzon, Madelaine.** Inga spp. mediated coffee berry borer predation by an omnivorous thrips

16:05-17:05 Poster Exhibition

(16:05-17:05 Coffee Station available)

Population, Community and Landscape Ecology

Bonsignore, Carmelo Peter. Thermal stress affects parasitization rate and relative frequency of some native parasitoids species associated with the Asian chestnut gall wasp

Chierici, Elena. Zoophages or phytophages but still beneficials: the role of carabid beetles in the agroecosystems

Diaconu, Alecu. Trophic relationships associated with *Macrocentrus pallipes* (Nees, 1811) (Hymenoptera: Braconidae) in orchards from Romania

Hardy, Ian. Density-dependent mutual interference in a bethylid wasp

Hondo, Masaru. Predation by the specialist carabid predator controls the prey population fluctuations

Corradetti, Marida. Parasitoid complex of the olive leaf gall midge (Diptera Cecidomyiidae) in the Marche region (central-eastern Italy)

Biological Control and IPM

Almandhari, Tarik. *Goniozus omanensis* (Hymenoptera: Bethyridae) an important parasitoid of the lesser date moth *Batrachedra amydraula* Meyrick (Lepidoptera: Batachedridae) in Oman

Al-Riyami, Abdulhamid. Effects of altitude on pomegranate infestation by the butterfly *Virachola livia* and on attack by its parasitoid natural enemies

Arif, Mokhtar. A survey of the egg parasitoids of *Bagrada hilaris* in Pantelleria Island reveal the lack of specific biological control agents in the island

Dindo, Maria Luisa. *Monarda fistulosa* L. hydrolate as antimicrobial agent in artificial media for the in vitro rearing of the tachinid parasitoid *Exorista larvarum* (L.)

Dumont, François. Potential of damsel bugs for biological control of the tarnished plant bugs in fields and greenhouses

Gumovsky, Alex. Fighting illegal immigration: history of success in the natural control of the Painted Lady (*Vanessa cardui*) on organic soybean in Ukraine

Herz, Annette. More power by flower for the pupal parasitoid *Trichopria drosophilae*, a candidate for biological control of the cherry vinegar fly

Honsberger, David. Attempts at biological control of the coffee berry borer *Hypothenemus hampei* (Coleoptera: Curculionidae) using extant natural enemies in Hawaii

Ismail, Mohannad. Competition between intra/inter species of *Trichogramma*

Kaliuzhna, Maryna. Effectiveness of biopesticide with avermectins for pea aphid control and its influence on aphidophagous guild on lentil

Keasar, Tamar. Season-dependent beneficial effects of non-chemical weed control on parasitoid wasps in Israeli vineyards

Ricupero, Michele. Target and non-target effects of eight essential oil-based nanoemulsions on the cotton aphid and its parasitoid *Aphidius colemani*

Speranza, Stefano. A very particular predator. The case of the earwig *D. lineare* (Dermaptera) that reduces damages caused by the fall armyworm (Noctuidae) in Maize

Yefremova, Zoya. Parasitoids (Hymenoptera, Chalcidoidea and Icheumonoidea) of Spotted Stem Borer *Chilo partellus* (Swinhoe) on the Pearl Millet in Mali

Evolution, Genetics and Physiology

Ashouri, Ahamad. How does *Wolbachia* infection cause less diapause percentage in *Trichogramma brassicae*?

Ashouri, Ahamad. *Ephestia kuehniella* larval diets affect the quality of host eggs and suitability for mass rearing *Trichogramma brassicae*

Caglioti, Concetta. Relevance of the four-bar linkage model for describing the foraging behaviour of entomophagous insects

Federici, Brian. The significance of understanding polydnviruses are not viruses for parasitoid evolution

Peri, Ezio. Genetic variation in the behavioural mechanisms involved in egg parasitoid arrestment responses

17:30 Departure for Social Excursion and Gala Dinner

Friday, 13 September 2019

08:00-12:50 Session 6. Evolution, Genetics and Physiology

Chairs: Brian Federici, Ted Evans

08:00-08:30 Keynote speaker

Hopper, Keith. Population genetics and selection on host specificity of aphid parasitoids

08:30-10:15 Oral presentations

08:30 Abe, Jun. Male sperm allocation and female mating frequency: sperm economy theory and empirical experiments in a parasitoid wasp

08:45 **Gumovsky, Alex.** The tolerance and violence saga: what chalcidoid parasitoids tell us

09:00 **Kaiser, Laure.** Do egg-laying strategy, virulence and local adaptation determine a parasitoid's chances to reproduce in a new host?

09:15 **Keasar, Tamar.** Intraspecific variation in egg maturation schedules in a synovigenic parasitoid: genetic, environmental and maternal effects

09:30 **Kruitwagen, Astrid.** Host-range evolution in parasitoid wasps: selective breeding of *Leptopilina heterotoma* for controlling *Drosophila suzukii*

09:45 **Leung, Kelley.** Narrowing the host specificity gene region in *Nasonia* parasitoid wasps

10:00 **Mougel-Imbert, Florence.** Identification of QTL involved in reproductive success traits of the parasitoid *C. typhae*

10:15-10:35 Coffee break

10:35-12:50 Oral presentations

10:35 **Ricupero, Michele.** Parasitism and phylogeny of *Dinocampus coccinellae* through different hosts and continents

10:50 **Collatz, Jana.** Influence of wild fruits on *Drosophila suzukii* and its parasitoid *Trichopria drosophilae*

11:05 **Evans, Ted.** Life cycle timing: Partial bivoltinism of *Tetrastichus julis* (Eulophidae) in parasitizing the Cereal Leaf Beetle

11:20 **Federici, Brian.** Ascovirus characteristics and searching for these unique viruses transmitted by parasitoids in Europe

11:35 **Häner, Nina.** Unravelling relevant aspects for overwintering of two pupal parasitoids of *Drosophila*

11:50 **Izraeli, Yehuda.** Improving biological control agents via their microbiome: a parasitoid wasp as a case study

12:05 **Shunichi, Shibuya.** Earlier discovery for insecticide resistance populations with SR gene and biological control using the egg parasitoids

12:20 **Stenoien, Carl.** Investigations of the ecology and physiology of the overwintering biology of *Aphelinus certus*, an adventive parasitoid of soybean aphid in North America

12:35 **Wong, Warren.** A successful method of cold storing brown marmorated stink bug egg masses for rearing, experimentation, and monitoring of its parasitoid, *Trissolcus japonicus*

12:50-13:50 Next IEIC venue; Student award

13:50-15:00 Conclusion of the Conference; Farewell cocktail