



## ARAB AND NEAR EAST PLANT PROTECTION NEWSLETTER



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# EDITORIAL

## Bogus Academic Journals

Starting in 2008, I began to notice a considerable increase in the number of emails received from online publishers asking me to contribute my research to their journals or inviting me to join their editorial boards. Some of them invited me to become editor in chief and even suggested that they would publish any scientific journal that I might propose. These emails began to interest me: first, they were linguistically quite vexatious, replete with spelling and grammatical errors; and second, I was aware that they went out in large numbers to academics and graduate students around the world. Many of these journals bore an "attractive" prefix, such as "International" or "British" or "American." Of course, these labels do not mean much in scientific circles, where they can be used by any publisher or editor without deterrent or objection.

These journals are of the kind labelled pseudo or fake journals, and sometimes they bear a false impact factor. They charge publication fees to authors without providing the editorial and publishing services associated with legitimate journals. Over time, the scammers have gotten increasingly sophisticated, and their journals have collectively become the scourge of scientific publications, just like counterfeiting. However, it's not difficult to spot a fake journal.

A Wikipedia article listed the following characteristics of predatory publications: "Accepting articles quickly with little or no peer review or quality control, including hoax and nonsensical papers, notifying academics of article fees only after papers are accepted, aggressively campaigning for academics to submit articles or serve on editorial boards, listing academics as members of editorial boards without their permission, and not allowing academics to resign from editorial boards, appointing fake academics to editorial boards, mimicking the name or web site style of more established journals, misleading claims about the publishing operation, such as a false location, improper use of ISSN, and fake Impact Factor."

Doubts about the honesty of and scams by these open-access journals had already been raised. In a recent sting operation, John Bohannon of *Science* magazine found that hundreds of open access journals accepted a fake scientific paper, revealing the "contours of an emerging wild west in academic publishing" and demonstrating an appalling lack of peer review and quality control at the journals he spoofed. Newer researchers from developing countries are particularly vulnerable to these journals. However, some academics in Arabic countries will still publish their works in these journals. This occurs for many reasons, but the main reason is the economic and employment situation. Irrespective of the content, publishing is a necessary condition for success in Arabic academia today. Most of the time, the scientists falling into the trap advertise such fake publications to employers and fellow academics to prompt their careers and professional standing.

How can we stop this scam? Providing adequate information support to the country's "intellectual infrastructure" and monitoring and controlling the quality of papers will prevent the waste of publishing in dodgy journals. Researchers should avoid doing business with these predatory publishers and make sure that they publish in legitimate journals of legitimate publishers. A research policy stressing publishing in prestigious peer-reviewed journals will certainly accentuate the critical role that universities play in national development and economic prosperity. Such policies will enhance the quality of science while encouraging researchers to embrace excellence.

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**Professor of Biochemical Engineering and Conway Fellow**  
**University College Dublin**

### INVASIVE AND NEW PESTS

#### EGYPT

**First report of *Clavibacter michiganensis* subsp. *sepedonicus* in Egypt.** In 2014, potato tubers (*Solanum tuberosum* cvs. 'Diamant' and 'Spunta') showing typical symptoms of ring rot were observed in the governorates of Assiut, Gharbia, Menoufia, Minia, and Sohag, in Egypt. Symptoms were observed in 10 out of 10 000 samples examined at the time of planting. Splitting infected tubers toward the stem end revealed a yellow to brown discolouration of the vascular tissue. The discoloured area had a cheesy appearance and exuded a milky ooze when squeezed. Samples were tested for the presence of ring rot disease according to the EC Directive 93/85/EEC. Based on biochemical, physiological, molecular (PCR assay) and pathogenicity tests, the presence of *Clavibacter michiganensis* subsp. *Sepeidonicus* (EPPO A2 List) was confirmed in diseased tubers. This is the first time that *C. michiganensis* subsp. *Sepeidonicus* is reported in Egypt, and this is also the first record of this bacterium in Africa. The situation of *Clavibacter michiganensis* subsp. *Sepeidonicus* in Egypt can be described as follows: Present, first found in 2014 in several governorates (Assiut, Gharbia, Menoufia, Minia, and Sohag). [Seleim M, Abo-Elyousr K, Mohamed A, Saeed F. New Disease Reports 30,15.2014].

#### IRAQ

**First Record and Host Plants of *Solenopsis* Mealybug, *Phenacoccus solenopsis* Tinsley, 1898 (Hemiptera, Pseudococcidae) from Iraq.** The solenopsis mealybug, *Phenacoccus solenopsis* Tinsley, 1898 (Hemiptera, Pseudococcidae) recorded as a new insect pest on ornamental plant *Lantana camara* (Verbenaceae) as well as other host plants for the first time in Iraq. Those insects observed initially during August 2014 up to July 2015 in residential gardens on the outskirts of Baghdad city, suburbs of Al-Ghadir and Al-Karrada Al-Sharqiya. [M.S. Abdul-Rassoul, I.M. Al-Malo, F.B. Hermiz. (Iraq). J.Bio. & Env. Sci.7, (2):216-222, 2015].

#### SAUDI ARABIA

**First reports of *Lettuce big-vein associated virus* and *Mirafiori lettuce big-vein virus* infecting lettuce in Saudi Arabia.** Lettuce (*Lactuca sativa*) is a common vegetable in Saudi Arabia, being cultivated on more than 4000 ha either in open fields or in greenhouses. In March 2014, field lettuce crops were surveyed in the Riyadh region and around 40% of plants were observed to have virus-like symptoms including vein clearing, stunting, deformed leaves and thickening of the main veins (Fig. 1). These symptoms resemble those caused by Lettuce big-vein disease (LBVD), an important disease of lettuce worldwide. Two viruses are associated with LBVD, *Lettuce big-vein associated virus* (LBVaV, *Varicosavirus*) and *Mirafiori lettuce big-vein virus* (MiLBVV, *Ophiovirus*) which are transmitted by the soil fungus *Oplidium brassicae* (Verbeek *et al.*, 2013). Nineteen samples (17-symptom bearing and two symptomless) were collected from four fields and total RNA was extracted (Chatzinasiou *et al.*, 2010). The extracted RNA was subjected to a multiplex reverse transcription (RT) PCR for the simultaneous detection of LBVaV and MiLBVV, using specific primers amplifying 296 and 469 bp fragments of their CP genes, respectively (Navarro *et al.*, 2004). The presence of *O. brassicae* was confirmed in the rootlets of all the symptomatic lettuce plants using light microscopy (Rochon, 2009). The results showed that 16 of the 17 lettuce samples showing symptoms were infected with LBVaV, nine with MiLBVV and eight with both LBVaV and MiLBVV. The two symptomless samples were found to be negative for both viruses. Two PCR products from each virus extracted from different plants were randomly selected for direct sequencing. The sequences were submitted to GenBank (Accession Nos. KJ701037, KJ701038, KJ701039 and KJ701040) and analysed using BLAST. Both sequences of LBVaV had 98% nucleotide (100% amino acid) identity with a sequence from Spain (AY366413) and 99% nucleotide (100% aa) identity with sequence from Japan (AB190528). The two MiLBVV sequences showed 98% (99% aa) and 99% nucleotide identity (99% aa) with an isolate from Spain (AY366418). To our knowledge, this is the first report of the occurrence of LBVD-associated viruses LBVaV and MiLBVV in Saudi Arabia. Further

surveys for monitoring the incidence and distribution of both LBVaV and MiLBVV in Saudi Arabia are in progress.[M.A. AL-Saleh, I.M. AL-Shahwan, M.A. Amer, M.T. Shakeel, M. Umar, O.A. Abdalla, C.E. Efthimiou and N.I. Katis.(Saudi Arabia).New Disease Reports .31, 2. 2015].

**Serological and Molecular Characterization of Cucurbit chlorotic yellows virus Affecting Cucumber Plants in Egypt.** This study was aimed to identify the causal agent inducing virus-like symptoms on cucumber plants in Egypt. A total of 45 symptomatic and asymptomatic cucumber samples were collected from five locations in El-Behira, government, Egypt during June 2014. Out of 45 samples analyzed by DAS-ELISA, Twenty two samples were found infected by CCYV only, two and four samples showed mixed infection with Cucurbit yellow stunting disorder virus + CCYV and Cucurbit aphid-borne yellows virus +CCYV respectively, whereas the rest of the samples were negative to all three viruses. No RT-PCR products were obtained with all tested samples when the specific primer for Beet pseudo-yellows virus was used. Total RNA was extracted from ELISA positive samples for CCYV and a 353-bp DNA fragment of the HSP70 gene was amplified by RT-PCR using specific primer for CCYV. The synthesized cDNA probe for CCYV was used to confirm the detection of CCYV in singly and mixed infections using dot blot hybridization. The highest similarity (100%) was found with 22 isolates of CCYV isolated from melon, watermelon, cucumber and muskmelon in Japan, China, Taiwan, Lebanon and Sudan was found but the lowest similarity (94.3%) was found with two isolates from cucumber and melon in Iran. To our knowledge, this is the first report of CCYV on cucumber in Egypt. [ Mahmoud Ahmed Amer (Saudi Arabia). International Journal of Virology 11: 1-11, 2015].

## SYRIA

**First Record of The red gum lerp psyllid, *Glycaspis brimblecombei* Moore, 1964 (Hemiptera; Aphalaridae) and its natural enemies on eucalyptus trees in the province of Lattakia, Syria.** Carried out field survey on the eucalyptus trees in the province of Lattakia in June 2015 in 22 locations. The results showed the presence of large numbers of cone-shaped white masses, called "Lerp", of different sizes on the leaves, included underneath different instars of nymphs Psyllid eucalyptus invaded, with a heavy honeydew on the leaves and new shoots, and the numbers are relatively less on old leaves. As results showed the presence of severe injuries in 11 locations, and medium injuring at 5 sites, was weak injuries in 5 other sites, did not observed the presence of infection in only one location, where the percentage of infected sites, according the severity of the infection of 50%, 22.7%, 22.7%, and 4.6%, respectively. The taxonomic study showed that the insect causing injury is the red gum lerp psyllid, *Glycaspis brimblecombei* Moore, 1964, which belong to Family Psyllidae and Order Hemiptera. Recorded the insect in many countries of the world where the Australian native, and which has spread to Malaysia, the Philippines, America (Florida and California), Mauritius, Madagascar, South Africa. Recently began to invade the Mediterranean region, where observed from 7 years in the Iberian Peninsula, France, Italy, Greece, Montenegro, Morocco and Algeria, and recorded in Tunisia in 2013, and in Turkey in 2014. The adult distinguished by form streamlined elongate, and the Compound eyes with contrasting dark eyes, The genal cones consist of a pair of cone-shaped extensions are extremely long and well developed, being as long as or longer than the head itself. The length of the insect between 2.5 to 3.1 mm, including two forms: one colored green, a female, and the second brown color, a male, has recorded all instar nymph under the white cap shield and without them. As observed, the presence of egg masses in various numbers, and eggs are yellowish brown in color and ovoid in shape. As the main presence of Parasitoid *Psyllaephagus bliteus* (Hymenoptera: Encyrtidae) an insect adult on 14.07.2015. It was observed the presence of some natural enemies as predators, namely: adults Coccinellids *Harmonia axyridis* and *Chilocorus bipustulatus* (Coleoptera: Coccinellidae), and adults Anthocoris bugs *Anthocoris nemoralis* (Hemiptera: Anthocoridae), and adults and larvae of Chrysopids *Chrysoperla carnea* (Neuroptera: Chrysopidae), It is registered for the first time in Lattakia – Syria, until now. [Nabil ABO KAF, Eyad Mohammed, Directorate of Agriculture in Lattakia, Syria, Technical Report, 2015]

**First Report of *Citrus Psorosis Virus* in Syria.** *Citrus psorosis virus* (CPsV) is one of the oldest known graft-transmissible viruses of citrus. It causes typical bark scaling lesions in the trunk and limb of sweet orange, mandarin, grapefruit and other citrus spp. During spring 2011, a total of 250 symptomatic and



asymptomatic trees, including 100 from a mother block in Lattakia governorate and 150 from six commercial orchards located in Jableh, Tartous and Lattakia areas were sampled to assess the presence of CPsV. All collected samples were analyzed by DAS-ELISA according to Potere *et al.* (1999) using a commercial kit (Agritest, Italy). Results indicated the presence of CPsV in two Navel Orange trees located in Lattakia. The presence of CPsV was confirmed in these trees by reverse transcription polymerase chain reaction (RT-PCR) using primers consF (5'- ACAAAGAAATTCCCTGCAAGGG-3') and consR (5'- AAGTTTCTATTCTGAAACCC-3') that target part of the CPsV coat protein gene (Roy *et al.*,2005) with the amplification of the expected size (411 bp) DNA product. The RT-PCR product was cloned and sequenced. The sequence of CPsV isolate SYR-C7 (GenBank accession No. HG964696) showed 97% nucleotide identity with Italian CPsV isolates (GenBank accession Nos AM235964 and AY194917). Symptoms associated to CPsV were observed in Syria (Bové, 1995) but the causal agent had yet to be identified. To our knowledge, this is the first CPsV detection in Syria by serological and molecular assays. [R. Abou Kubaa, S. Saleh, S. Kumari, A. El Khateeb and K. Djelouah. (Syria). Journal of Plant Pathology 81: 209-212, 2014]

## OMAN

**First Report of Tomato leaf curl Albatinah virus (ToLCABV) and its Associated Betasatellite Infecting Papaya in Oman.** Leaf curl disease with severe curling, vein darkening, and vein thickening was observed on papaya plants in a field in Qurayat district of Oman during December 2013. Disease incidence ranged from 50 to 70%, particularly in young papaya plants. The presence of a large population of whiteflies and symptoms observed on papaya plants suggested that the causal agent could be begomoviruses (family *Geminiviridae*) and associated satellites. Four leaf samples with mild and severe leaf curling were collected from the field. Total nucleic acid extracted from symptomatic and healthy plants using the CTAB method were used as a template to amplify circular DNAs using  $\Phi$ 29 DNA polymerase, and products were digested with restriction enzymes to identify fragments of 2.6 to 2.8 kb typical of geminiviruses. *Bam*HI yielded fragments of ~2.8 and 1.4 kb when the digested products were resolved by electrophoresis on a 1% agarose gel. These fragments were cloned and sequenced using a primer walking strategy in both directions. Sequencing results confirmed the exact sizes of 1,303, 1,358, and 2,765 bp; the sequences were deposited in GenBank under the accession numbers HG969296, HG969297, and HG969260, respectively. BLAST results showed that the first two sequences are Tomato leaf curl betasatellite (ToLCB; isolates Pap-2 and Pap-3) showing 97% sequence identity with a previously reported ToLCB sequence (Accession No. KF229728). Both satellites encode a single gene in the complementary sense strand referred to as  $\beta$ C1, which showed 97% sequence identity to ToLCB (HE800551). The viral sequence (isolate Pap-6) showed four genes in the complementary sense (the replication-associated protein [Rep] gene, the transcription-activator protein [TrAP] gene, the replication-enhancer protein [REn] gene, and the C4 gene) and two genes (pre-coat protein [V2] and coat protein [CP]) in virion-sense. BLAST analysis showed 95.2% sequence identity to *Tomato leaf curl Albatinah virus* (ToLCABV; FJ956700), reported earlier to infect tomato in Oman. Amino acid sequence comparison of the four predicted proteins (Rep, TrAP, Ren, and C4) encoded by Pap-6 shared 95, 96, 100, and 100% sequence identity, whereas virion-sense proteins (V1 and V2) shared 99% sequence identity with ToLCABV (FJ956700). According to the recommendations of the International Committee on Taxonomy of Viruses, these results indicate that the virus identified in association with papaya leaf curl disease in Oman is a variant of ToLCABV (1). All infected samples showed the presence of ToLCABV, while no hybridization was observed in healthy control DNA using ToLCABV probe. These findings are indicative of the rapid spread of diseases involving *Begomovirus* and betasatellites, which often result in increased host range, as is evident from this study. [U. E. Ammara, A. Al-Shihi, I. Amin, and A. M. Al-Sadi (Oman & Pakistan). Plant Disease, 99(3): 421, 2015].

## LEBANON

**Identification and Molecular Characterization of Citrus Variegation Virus in Lebanon.** Citrus is one of the main fruit crops of Lebanon, covering a surface area of ca. 10,000 ha and accounting for 8% of the total area given over to woody crops. The major citrus production regions are in the South and North of the country and along the coastal area. *Citrus variegation virus* (CVV), the causal agent of infectious variegation disease, is a member of the genus *Ilarvirus* (subgroup 2) in the family *Bromoviridae*. During a

survey of four commercial citrus groves at Abde-LARI station (North Lebanon) and in Saida and Ghazieyyeh regions (South Lebanon), 28 leaf samples of sweet orange and lemon trees, some of which with puckered leaves and/or fruit deformation, were collected and tested by RT PCR for CVV using specific primers cvv249fw (5'TACCATTGCCTACATGACCC 3') and cvv249rev (5' GCCTTCATTCGGAAACCGTG 3') (Loconsole *et al.*, 2009), and total nucleic acids were extracted with the silica capture protocol (Foissac *et al.*, 2001). RT-PCR results were consistent with the presence of CVV in one common lemon tree showing leaf and fruit deformations. The DNA product was cloned in pUC18 (Life Technologies, USA) and sequenced. The partial coat protein sequence (249 bp) was deposited in GenBank under the accession No. LN829412. Sequence analysis revealed 97% nucleotide identity with the Italian CVV isolate UBAcvv999 (FJ228143). To our knowledge, this is the first record of CVV from Lebanon.[ R. Abou Kubaa, E. Choueiri, M.I. El Khoury and K. Djelouah.(Lebanon). Journal of Plant Pathology, 91: 311-319].

## TUNIS

**First Report of *Anacampsis scintillella* on *Halimium halimifolium* in Sejnane (Bizerte, Tunisia).** At the beginning of April 2010, larvae of *Orgyia trigotephras* and *Anacampsis scintillella* caused severe plant defoliation in the region of Sejnane situated in the north of Tunisia. *A. scintillella* was observed on totally defoliated *Halimium halimifolium* plants. Larvae and pupae of *A. scintillella* were protected between two or three leaves of the host plant. Life history of *A. scintillella* is poorly studied, so far. In this paper, we presented a first report of this pest in Tunisia. [Ezzine, O., Hammami, S., Hausmann, A., Nouira S., and Ben Jamâa M.L. (Tunis) Tunisia Journal of Plant Protection 10: 63-68.2015].

**First report of *Tomato leaf curl New Delhi virus* infecting cucurbits in Tunisia.** Due to the favorable climate of the southern Mediterranean countries including Tunisia, cucurbits are grown year-round in open fields, and unheated and geo-thermally heated plastic tunnels. In January 2015, a serious disease affecting many plants, and that may generally impede continued growth of crops until the end of the season, was observed on cucurbits (melon, cucumber and zucchini) cultivated in geo-thermally heated plastic tunnels in the Kébili region (southeastern Tunisia). The symptoms consisted of severe yellowing and mosaic in young leaves and included curling, vein swelling and short internodes (Fig. 1), together with fruit skin roughness and longitudinal cracking (Fig. 2). A virus disease was suspected based on (i) the importance of the affected plants, (ii) the recent detection of *Tomato yellow leaf curl virus* (TYLCV) on watermelon in Tunisia (Mnari-Hattab *et al.*, 2014a) and (iii) the outbreak of *Tomato leaf curl New Delhi virus* (ToLCNDV) on zucchini in Spain (Juárez *et al.*, 2014). Consequently, the involvement of a *Begomovirus* (family *Geminiviridae*) not previously reported in Tunisia was suggested. In order to establish the nature of the suspected virus infection, a total of nine samples (i.e. leaves, and fruit skins) collected from plants exhibiting severe symptoms were tested for potential begomovirus infection. To investigate this, DNA was purified from the tissue and PCR amplification was performed using degenerate primers designed to amplify the sequence encoding the begomovirus coat protein (CP) gene (Wyatt & Brown, 1996; Mnari-Hattab *et al.*, 2014b). A product of ~560 bp was obtained from all the tested symptom-bearing samples and absent from samples collected from symptomless plants. Multiplex PCR (Davino *et al.*, 2008) was used to attempt to identify the begomovirus species responsible for the infection. However, neither a 570 bp amplicon for TYLCV nor a 800 bp amplicon for *Tomato yellow leaf curl Sardinia virus* (TYLCSV) were generated with DNA extracted from the infected plants investigated here. Three CP amplicons from the degenerate priming study were cloned and sequenced and shared 99% identity with one another. The nucleotide sequences were deposited in GenBank (Accession Nos. KP979713-KP979715). BLAST analysis showed that the three sequences shared highest nucleotide identity (97.6 to 99.2%) with partial CP gene sequences from isolates of ToLCNDV infecting tomato and zucchini in Spain (KM977733 and KF749225) but were also related to the corresponding sequence of an Indian isolate of ToLCNDV (KC846817) where homology scores between 96.9 and 97.3% were found. ToLCNDV, a bipartite begomovirus first reported in India and neighbouring countries infecting solanaceous and cucurbitaceous crops and more recently reported in Spain on zucchini and tomato, is described to the best of our knowledge for the first time in cucurbit crops in Tunisia. Based on our findings, further targeted surveys must be undertaken to advance our knowledge of this emerging disease.[ M. Mnari-Hattab, S. Zammouri, M.S. Belkadi, D. Bellon Doña, E. ben Nahia and M.R. Hajlaoui.(Tunisia).New Disease Reports, 31: 21, 2015].

## TURKEY

**First report of *Puccinia dracunculina* on *Artemisia dracunculus* in Turkey.** *Artemisia dracunculus* var. *sativa* (tarragon) is a medicinal and spice plant, grown commonly in home gardens, in southern and southeastern districts of Turkey. It has also been cultivated organically in fields of the Şanlıurfa region in southeastern Anatolia for over a decade. During surveys performed in early summer 2014, a severe rust disease was observed on organically cultivated tarragon plants in this location. The severity of the disease attack appeared to increase during the summer season. Many leaves, covered with dense uredinial pustules had died before flowering. Uredinia were light brown, globose to irregular, 70-250 µm across, mostly colonising the lower surfaces of leaves with some on the upper surfaces and on the stems. The urediniospores were nearly colourless, had a wall of even thickness and varied in shape to include spherical, ellipsoidal, and pyriform and other irregular forms, 13-22 x 26-38 µm. Some telia, dark brown and 100-300 µm across, occurred on the lower surface of leaves, starting to appear at the end of summer, increasing in autumn. The teliospores were brown, typically two celled, 21-25 x 40-55 µm, with a wall of uneven thickness. Many of the teliospores had characteristic, colorless pedicels that varied in length from 42 to 78 µm. Based on these properties, the rust pathogen was identified as *Puccinia dracunculina* Fahrenh. The uredinial stage of this rust pathogen was the dominant and active form during the summer season while the telial stage was active in autumn or mid-autumn, similar to earlier results. Although this species is autoecious, basidiospores were not observed. Pathogenicity tests were performed on one-month-old healthy *A. dracunculus* var. *sativa* plants grown from rooted cuttings in pots. Using a fine brush, urediniospores were brushed from pustules onto fresh, naturally infected leaves of field tarragon plants held in a petri dish. A suspension of urediniospores was prepared in sterile, distilled water containing one small drop of Tween 20 per 100 ml and adjusted to  $1 \times 10^4$  spores per ml. Nine plants were sprayed with the urediniospore suspension and three plants were sprayed with sterilized distilled water as controls. All plants were enclosed in a plastic bag for 48 h after spraying and kept at 20°C in a greenhouse. First symptoms, similar to those on naturally infected plants, occurred two weeks after inoculation on the plants inoculated with the spores but the controls remained symptomless. Urediniospores were later re-isolated from inoculated plants, but not in controls. This rust disease appears to be a major problem on tarragon in Turkey, particularly under organic cultivation in the Şanlıurfa district. According to research, this rust species infects only tarragon and is known throughout the world where this plant is cultivated. However, to our knowledge this is the first report of *P. dracunculina* on *A. dracunculus* in Turkey. [H. Kavak and A. Bilgili. (Turkey). *New Disease Reports*, 31: 28, 2015].

## RESEARCH HIGHLIGHTS

### ALGERIA

**Formulation of the endophytic fungus *Cladosporium oxysporum* Berk. & M.A. Curtis, isolated from *Euphorbia bupleuroides* subsp. *luteola*, as a new biocontrol tool against the black bean aphid (*Aphis fabae* Scop.)** Two formulations containing culture filtrates and conidial suspensions of the endophytic fungus *Cladosporium oxysporum* Berk. & M.A. Curtis, isolated previously from stems of *Euphorbia bupleuroides* subsp. *luteola* (Kralik) Maire, were experimentally tested for their aphicidal activity against the black bean aphid *Aphis fabae* Scop. Found in Algeria. It was shown that invert emulsions are more effective against aphids, than using aqueous suspensions. This was especially true for formulations containing culture filtrates. The relatively insignificant mortalities obtained by formulations containing conidial suspensions indicated a low infectious potential towards the aphids. The proteolytic activity seemed to be more important than the chitinolytic activity of the fungus against the black bean aphid *A. fabae*. [Oussama Ali Bensaci, Harzallah Daoud, Nadia Lombarkia and Khamsa Rouabah (Algeria). *Journal of Plant Protection Research*, 55(1): 80-87, 2015].

**Entomofauna of Ziban Oasis, Biskra, Algeria.** An inventory was carried out at five stations in the oasis of Ziban, an oasis that is characterized by its high-quality dates, in order to study the relationships between the oasis ecosystem and its insect fauna. Specimens were sampled using pitfall traps containing ethylene glycol as a preservative. In total, 115 arthropod species were collected during 5 months of survey. These



species belonged to 61 families, 17 orders, and 4 classes (12 orders from Insecta, 3 from Arachnida, 1 from Chilopoda, and 1 from Malacostraca). The most represented insect orders were Coleoptera (44.42%), Hymenoptera (20.86%), and Lepidoptera (7.87%). Represented in the collections were phytophagous, omnivorous, and predator/parasite species. Given the large number of species collected, and the largely unknown relationships existing between the various ecological groups, this study is a first step in the description of the oasis entomofauna. [Nassima Deghiche-Diab, Francisco Porcelli, and Mohamed Belhamra. J. Insect Sci. 15(41):DOI:10.1093/jisesa/ieu170.2015].

**Inventory of Arthropods in an agro-ecosystem Ziban oasis, Ain Ben Noui, Biskra, Algeria.** The present study was carried out at the I.T.D.A.S. station (Ain Ben, Biskra), it consists on a contribution to the knowledge of the Ziban oasis arthropods. During the study (2013-2014), every seven days, arthropods were collected using five methods; pitfall traps, yellow water traps, collecting net, light traps and direct hunting. The sample was composed of 2 647 individuals belonging to 18 orders, 69 families and 127 species. The results showed a predominance of the Coleoptera order with 27 especes followed by Hymenoptera order with 16 species, Hemiptera order with 15 species and Lepidoptera order with 13 especes. A qualitative and quantitative analysis of species identified was done using the different ecological indices and data processing software R. [Deghiche-Diab Nassima, Deghiche Lahcen, and Belhamra Mohammed. Journal of Entomology and Zoology Studies, 3 (4):229-234, 2015].

## EGYPT

**Efficacy of Nano-extracted Destruxin from *Metarhizium anisopliae* against *Sitophilus oryzae* (L.) (Coleoptera: Curculionidae) under laboratory and store conditions.** The rice weevil - *Sitophilus oryzae* (L.) (Coleoptera: Curculionidae) is one of the most serious stored grain pests worldwide. Destruxin is a cyclic hexadepsipeptide produced by entomopathogenic and phytopathogenic fungi composed of five amino acids and one hydroxyl acid. The effect of Nanoextracted Destruxin from *Metarhizium anisopliae* was evaluated against the rice weevil. Results showed that the mean number of eggs laid/female of *S. oryzae* significantly decreased to  $90.6 \pm 2.1$  and  $41.6 \pm 3.1$  eggs/female when treated with Destruxin and Nano-Destruxin, respectively as compared to  $299.6 \pm 8.4$  eggs/female in the control. When *S. oryzae* were treated with Destruxin and Nano-Destruxin the percentage of infestations were significantly decreased to 18 % and 4 % respectively as compared to 99 % in the control in the store. [Magda M. A. SABBOUR (Egypt).10<sup>th</sup> Conference on integrated Protection of Stored Products IPSP 2015 IOBC/wprsn,Zagreb,Croatia 28-29/6/2015].

**A Survey of Plant Parasitic Nematodes Associated with Different Plants in North Sinai.** This survey was conducted in some villages of North Sinai Governorate and Sahl El-Teina- Egypt during2013/2014 to study distribution and dissemination of plant parasitic nematodes associated with vegetables and field crops, fruit tress besides some ornamental and weed plants. Data showed the presence of fourteen plant parasitic nematode genera and species. These were *Criconema* sp., *Criconemoides* sp., *Ditylenchus* sp., *Hemicriconemoides* sp., *Heterodera* sp., *Hoplolaimus* sp., *Longidorus* sp., *Meloidogyne* sp., *Pratylenchus* sp., *Rotylenchulus reniformis*, *Tylenchorhynchus* sp., *Tylenchulus semipenetrans*, *Tylenchus* sp. and *Xiphinema* sp. It is noticed that *Meloidogyne* sp. was more predominant in samples collected from Sahl El-Teina, Beer El-Abd and El-Sheikh Zowaid with the percentages frequency of 27.6, 48.1 and 33.3%, respectively. Whereas, stunt nematode, *Tylenchorhynchus* sp. was the most predominant in Rafah county with the percentage occurrence of 66.6%. For all surveyed villages, stunt nematode was the first in its general average percentage frequency of occurrence of 29.1% followed by that of root knot nematode (27.3%), stubby nematode (13.9%) and lesion nematode. (12.5%). [Korayem, A.M., Youssef, M.M.A., Mohamed, M.M.M. and Lashein, A.M.S. (Egypt). Middle East Journal of Agriculture Research, 3(3): 522-529, 2014].

**Effect of some Commercial Biofertilizers and a Biocide on Root Knot Nematode, *Meloidogyne incognita* Infesting Date Palm in a Newly Reclaimed Soil in Egypt.** Date palm, *Phoenix dactylifera* L., is attacked by numerous pests and diseases of which root knot nematodes wherever is grown causing damage to its yield. Four commercial biofertilizers and a biocide were evaluated for managing root knot nematode, *Meloidogyne incognita* infesting date palm cv. El-khalas in a newly reclaimed sandy loam soil in Nubarya, Egypt. These biofertilizers were biogen (containing nitrogen fixing bacterium namely,

*Azotobacter chroococcum*), potassiumag (potassium dissolving bacterium namely, *Bacillus circulans*), nitroben (containing nitrogen fixing bacteria namely, *Azotobacter chroococcum* and *Azospirillum brasilense*) and phosphorine (phosphate dissolving bacterium namely *Bacillus megatherium*) as well as a biocide, vertemik (Abamectin 1.8%) (Fermentation product of a bacterium, *Streptomyces avermitilis*) at recommended rates. The obtained results indicated that all treatments significantly ( $p \leq 0.05$ ) reduced nematode criteria at different degrees as evidenced by number of juveniles in soil and roots, either two months after the second application or at harvest and number of galls, egg masses, females and developmental stages in roots at harvest. Abamectin was superior in increasing productivity of date palm, as the percentage increase was 81.8% followed by those of phosphorine (72.7%) and nitroben (63.6%). Biogen and potassiumag caused the least ones. Hence, these commercial biofertilizers can be introduced in integrated nematode management programme. [M. M. A Youssef and Asmahan M.S. Lashein. (Egypt). Middle East Journal of Applied Sciences, 5(1):143-147, 2015].

**Estimate the effect of climatic factors on population density of parlatoria date scale insect, *Parlatoria blanchardi* by different models of correlation and regression.** The parlatoria date scale insect, *Parlatoria blanchardi* (Targioni-Tozzetti) (Hemiptera: Diaspididae) is a serious pest on date palm trees in Egypt. The adults and nymphs of this insect sucking great amount of plant sap that give low rates of photosynthesis and respiration, which leads to curling, yellowing, dryness and leaves shedding. The present work was carried out to study the impact of climatic factors on population density of *P. blanchardi* infesting date palm trees by different models of correlation and regression during the current year (average five years from 2009 to 2013) at Esna district, Luxor Governorate, Egypt. The results revealed that the monthly observations of the total population of *P. blanchardi* had three to four peaks of seasonal activity per year. The results showed simple significant positive correlation between the mean temperature and different stages of *P. blanchardi* and total population of insect. Similarly, the relation between mean dew point and different stages of *P. blanchardi* and total population of insect was significantly positive. Differently, the simple correlation between mean of relative humidity and different stages and total population of insects was significantly negative. Among five models of regression, the quartic degree of polynomial regression was exhibiting the highest percentage of explaining variance (E.V. %) as compared with the other models in all studied relations. Also, linear and logarithmic regressions were significant in all studied relations. The results revealed that the mean dew point was below the optimum range for activities of nymphs, adult females and total population of *P. blanchardi*. The most effective variable in population changes was mean dew point and it was 28.05, 23.42 and 26.41% for nymphs, adult females and total population of insect, respectively. The results demonstrated that the combined effect of maximum temperature, relative humidity and dew point was significant effect on the numbers of nymphs of *P. blanchardi*. The percentages of explaining variance (E.V.%) indicated that the effect of all tested climatic factors on population changes of nymphs, adult females and total population of insect were responsible for 73.9, 65.5 and 71.2%, respectively. [Bakry, M.M.S., Roya Arbabtafti, M.A.A. Abdrabbo and S.F.M. Moussa. (Egypt). Academic Research Journal of Agricultural Science and Research, 3(8): 207-218, 2015].

## IRAQ

**The effect of microwave on different stages of date moth, *Ephesia cautella* (Walker) (Lepidoptera: Pyralidae) in stored date.** Date moth (fig moth), *Ephesia cautella* (Walker) is a major pest in storage and marketing dates. Eggs, larvae, pupae and adults of date moth *E. cautella* were exposed to three levels of microwave power (600, 800 and 1000 Watt) at different exposure time (0, 6, 8, 10, 12, 14, 16, 18 and 20 second). The results showed that microwave had high ability to kill different stages of date moth. The effect increased by increasing of microwave power and exposure time. The percentage of egg mortality was 100% at 600 and 800 Watt, and 14 sec. exposure time. Similarly, eggs mortality was also high at 1000 Watt, but in less than 12 sec. The highest mortality of larvae was 90% at 600 W and 96.7% at 800 Watt, when the exposure time was 10 sec., the mortality was 100% at 1000 Watt and exposure time was 10 sec. Male and female pupal mortality rate was 100% at 800 Watt, and 20 or 18 sec. respectively. The range of lethal time of 50% and 95% ( $LT_{50}$ ,  $LT_{95}$ ) at 600 - 1000 Watt were 5.01 – 9.9 and 15.7 – 34.2, 3.0 – 7.5 and 9.0 – 50.0 and 3.2 – 4.8 and 7.9 – 39.1 for egg, larvae and pupae respectively. The results showed that all treatments adults significantly affected longevity and emergence of adult male and female. The longevity of emerged males and females did not exceeded 4.3 and 5.3 days respectively at 600 Watt and 6 sec. Adults emergence stopped at 800 Watt and 14 and 16 sec., for male and female pupae,

respectively. The results of this investigation indicated the feasibility of microwave technique and could be used as alternative Methyl Bromide in stored dates. [Mohammed Z. KHALAF, Falah H. NAHER, Hussain F. ALRUBEAI (Iraq).10<sup>th</sup> Conference on integrated Protection of Stored Products IPSP 2015 IOBC/wprsn, Zagreb, Croatia 28-29/6/2015.]

**Comparison of *Rhizoctonia solani* isolated from soil in Baghdad – Iraq genetically with World isolates.** *R. solani* is a soil-borne Basidiomycete occurring worldwide. The objective of this study was to compare isolates of *Rhizoctonia solani* from some soil samples collected from different regions (Abu Ghraib, Yusifiyah, Al Rashidiya, Tarmiya, Doura and Quraiat) in Baghdad, Iraq. The degree of kinship for *R. solani* isolates was estimated by the PCR technology. A total of 24 isolates of *R. solani* were isolated from 114 soil samples. Pathogenicity test using radish seedlings showed that 11 isolates were highly virulent, 5 isolates were moderately virulent, and 8 isolates showed low virulence. The colony morphology on PSA of isolates (IQ4, IQ6, IQ9, IQ14, IQ15, IQ16, IQ24, IQ25, IQ26, IQ28 and IQ50) showed typical features of *R. solani*. The sequences of 9 *R. solani* isolates from tomato plants deposited at NCBI – GenBank nucleotide database. The Gen Bank accession number for each isolate sequence was available since November 2013 as KF372663 – KF372673. The results of phylogenetic analysis showed that, identifying soil isolates were within AG4: two isolates, IQ4 and IQ6 were closely related to AG4-HGI and 9 isolates, IQ14, IQ15, IQ50, IQ9, IQ16, IQ24, IQ26, IQ25 and IQ28 were belonged to AG4–HG III (BS = 99%) and showed sequence similarity of 94, 97, 85, 96, 67, 69, 60, 74, 66, 66 and 65% respectively. [T. A. Kareem and M. S. Hassan. (Iraq).Donnish Journal of Agricultural Research, 2 (3):20-26, 2015].

**The molecular investigation of phytoplasma *Candidatus phytoplasma infecting Arabic jasmine *Jasminum sambac* in Iraq.*** This study was conducted to investigate phytoplasma causing a virescence disease on Arabic jasmine *Jasminum sambac* based on microscopy and molecular approaches. Samples were collected from symptomatic Arabic jasmine plants grown in nurseries in Baghdad, Iraq. Specimens from infected plants were prepared and Dienes stained for light microscopy examination. Phytoplasma were detected in infected plants by polymerase chain reaction (PCR) using P1/P7 and SecAfor1/SecArev3 *Candidatus* phytoplasma specific primer sets. Light microscopy test showed symptomatic Arabic jasmine plants were phytoplasmas infected when phloem tissues were stained with a dark blue color. PCR test confirmed the symptomatic plants were phytoplasmas infected when SecAfor1/SecArev3 primers could detect phytoplasmas in tested samples. This primer set amplified the 830 bp DNA fragments of secA gene within phytoplasma genome from infected Arabic jasmine samples. Whereas, P1/P7 primer sets could not detect phytoplasmas in tested samples. This study is the first molecular confirmation of the phytoplasma disease on Arabic jasmine in Baghdad, Iraq. [N. A. S. Al-Kuwaiti, T.A. Kareem, D. S. Jameel (Iraq). Iraqi Journal of Science, 56 (4), 2015].

**Evaluation of the Sex Pheromone Efficiency of the Lesser Date Moth, *Batrachedra amydraula* Meyrick (Lepidoptera: Batrachedridae), in Baghdad, Iraq.** The study was conducted in date palm groves in Swaib region of Baghdad for the agricultural season 2012. The main objective of the present study was to evaluate the efficacy of lesser date moth, *Batrachedra amydraula*, sex pheromone lure and its longevity in harsh desert climate. Various trap types and height have been studied for traps baited with *B. amydraula* pheromone lure. Results indicated that an average of 11.33 males/trap/week was captured on traps baited *B. amydraula* lure during the last week of April, which represents the onset of insect in the field. The highest rate of trap catches was recorded as 20 males/trap/week during the first week of May. Around 90% of the moths were emerged during these two weeks. *B. amydraula* pheromone lure remained effective over a period of 7-8 weeks. Traps which placed at a height of three meters from the ground level were found more efficient than those suspended at six meters. Average trap catches was 1.99-5.32 males/trap/week for traps placed at three meters height, and 1-3.99 males/trap/week was recorded on traps placed at six meters height. Delta trap was found more effective than funnel traps when applied against *B. amydraula*. [Ridha Sagub Al-Jorany, Ibrahim Jadou Al-Jboory and Nayem Hassan. (Iraq). Journal of Life Sciences, 9: 242-247, 2015].

**Evaluation of the Efficiency of Different Substrates in Growth Production and Quality Characteristics for the Paddy Straw Mushroom Strain VD.** Results of the paddy straw mushroom (psm) *Volvariella volvacea* and production on different substrates showed that the paddy straw substrate surpassed in extended time for psm mycelium growth completion with 3.25 days, pinheads emergence for 6 days and in fruiting bodies formation emergence for 4.25 days after pinheads stage. Meanwhile, mean of psm fruit weight was 110g/2kg substrate weight while bio-efficiency was 23.89%. Stalk length and cap

diameter of psm exceeded on corn cobs substrate with 5.42 and 7.82 cm, respectively, compared with 3.67 and 7.47 cm on paddy straw, respectively. On wheat straw, psm mycelium growth completion, pinheads emergence and fruiting bodies took the longest time of 6.25, 9.25 and 5.75 days after psm pinhead stage. On wheat straw substrate, it was found that stalk length, cap diameter, fruit weight and bio-efficiency means were 2.92 cm, 5.98 cm, 55.5 g/2 kg and 9.31, respectively. Chemical analysis showed the highest content of moisture and protein of 90.73% and 40.70%, respectively. Corn cob substrate recorded the highest percentage of psm fruit ash of 12.03%, higher fat percentage was found in fruits grown on paddy straw and corn substrate of 1.266% for both substrates. 19.36% and 53.93% were the highest percentage of manufactured fiber and carbohydrates were found to be in psm grown on corn cobs substrate and palm waste, respectively. [D.S.Jamel, K. S. Juber and H. A. Hadwan. (Iraq), The Iraqi Journal of Agricultural Sciences, 46(3): 362-368, 2015].

## IRAN

**Effects of Abiotic Factors and Host Preference on the Biology of the Oriental Cabbage Webworm, *Hellula undalis* Fabricius (Lepidoptera: Pyralidae).** Because of the importance of *Hellula undalis* (Lepidoptera: Pyralidae) as a serious pest of crucifers in Iran and absence of adequate information, this study was conducted to investigate its biology under laboratory and greenhouse conditions on different host plants during the years 2007-2008. The result showed that the maximum percentage of larval mortality and survival were observed at  $15\pm 0.5^{\circ}\text{C}$  and  $25\pm 0.5^{\circ}\text{C}$ . At each given temperature, different relative humidity levels produced a significant effect on the mortality while the influence of same relative humidity at different temperatures was not significant. At  $20\pm 0.5^{\circ}\text{C}$ , pupae were heavier than at  $25\pm 0.5^{\circ}\text{C}$ . The greenhouse study showed that mean larval period on cabbage and rapa was significantly longer and was shorter than on the other hosts. The pupal weight differed significantly at  $22.5^{\circ}\text{C}$  between chou moellier and other host plants. At  $24.3^{\circ}\text{C}$ , a significant pupal weight was found between rapa and cauliflower in comparison to cabbage and chou moellier. [Sultan Ravan, Najmeh Sahebzadeh (Iran). Jordan Journal of Agricultural Sciences, 11 (3), 2015].

**Incidence and distribution of Apple chlorotic leaf spot virus in the main fruit growing areas of Iran.** A survey for the presence of Apple chlorotic leaf spot virus (ACLSV) in apple (*Malus pumila*), pear (*Pyrus communis*) and quince (*Cydonia oblonga*) was conducted in the provinces of Tehran, Isfahan, Khorasan, East and West Azerbaijan, the main pome fruit growing areas in Iran. Samples were taken from 1078 apple, 92 pear and 23 quince trees and tested by double antibody sandwich-ELISA for the presence of ACLSV using commercial kits (Bioreba, Switzerland). ACLSV was detected in 200 apple samples (18.55%) but in none of the other samples. Some of the positive samples came from trees bearing small and malformed leaves with necrotic lesions, whereas others were from symptomless plants. The highest incidence of ACLSV was in the province of Isfahan (30.9%), followed by West Azerbaijan (17.78%), Tehran (14.1%) and East Azerbaijan (11.68%). To confirm virus identification, total RNA was extracted from leaf samples and subjected to reverse transcription polymerase chain reaction using primers specific for a region of the ACLSV genome that encodes part of the coat protein (CP). A 358 bp DNA fragment corresponding to a fragment of the ACLSV CP gene was amplified from extracts of infected trees but not from those of healthy trees. [T. Keshavarz and M. Shams-Bakhsh (Iran). Archives of Phytopathology and Plant Protection, 48(1):306-312, 2015].

**Effects of *Bacillus thuringiensis* var. *kurstaki* and Spinosad on three larval stages (1st, 2nd and 3<sup>rd</sup>) of tomato borer, *Tuta absoluta* (Meyrick) (Lepidoptera: Gelechiidae) under laboratory conditions.** The tomato borer, *Tuta absoluta* (Meyrick) (Lepidoptera: Gelechiidae), is considered to be one of the most devastating pests affecting the tomato crops, where crop losses reach 60 to 100%. In this research, two bio-insecticides, *Bacillus thuringiensis* and Spinosad, were evaluated for their efficacy in the control of *T. absoluta*, on tomato plant under laboratory conditions. The  $\text{LC}_{25}$  and  $\text{LC}_{50}$  values of *B. thuringiensis* and Spinosad were estimated on 1st, 2nd and 3rd larval instars. Furthermore,  $\text{LC}_{50}$  values for *B. thuringiensis* treatments on three larval stages were 2386.755, 2109.978 and 2757.651 ppm and for Spinosad 1283.915, 1339.862 and 2253.188 ppm, respectively, and  $\text{LC}_{25}$  values of *B. thuringiensis* and Spinosad treatments on three larval stages were 985.440, 1368.202 and 1914.574 ppm and 436.268, 643.788 and 1526.941 ppm, respectively. After determining the  $\text{LC}_{50}$  and  $\text{LC}_{25}$  values of both agents, to evaluate the combined effects of bacterium and Spinosad, an experiment was conducted in the form of



completely randomized design with four treatments including LC<sub>50</sub> (*Bt*), LC<sub>50</sub> (*Sp*), LC<sub>25</sub> (*Bt*) plus LC<sub>25</sub> (*Sp*) and control. Statistical analysis of the results showed that mortality rate combination of two biological agents treatment on three larval stages 1st, 2nd and 3rd of *T. absoluta* compared with control, Spinosad and *B.t* alone treatments have significant differences ( $P < 0.05$ ). Results demonstrated that Spinosad treatment was more effective in the control of *T. absoluta* than the *B. thuringiensis* treatment. The LC<sub>25</sub> and LC<sub>50</sub> values of *B. thuringiensis* and Spinosad were demonstrated on three larval stages in which first instar larvae was the most susceptible. The results showed that the combination of *B. thuringiensis* and Spinosad have good additive effect when compared with single treatments. We recommend the combination of two biological agents to control this pest. Our current study indicated that the concept of integrating bio-insecticides, *B. thuringiensis* and Spinosad, with other control tactics, especially with environmentally acceptable agents has opened further opportunities for their uses as biological control agents of insect pests. [Azra Hashemitassuji, Mohammad Hassan Safaralizadeh, Shahram Aramideh and Zahra Hashemitassuji (Iran). Archives of Phytopathology and Plant Protection, 48(1): 377-384, 2015]

**Study of genetic diversity of *Cytospora chrysosperma* isolates obtained from walnut trees in Iran using inter simple sequence repeat (ISSR) markers.** In order to evaluate genetic diversity of *Cytospora chrysosperma* isolates, the main causal agent of *Cytospora* canker, infected samples from major walnut cultivation areas in 12 provinces of Iran (Hamedan, Kurdistan, Kermanshah, Ilam, West Azarbaijan, Zanjan, Markazi, Lorestan, Chaharmahal va Bakhtiari, Isfahan, Kohgiluyeh va Boyer-Ahmad and Fars) were collected. Out of 147 isolates, 58 representatives were selected according to their geographical origins in order to study their genetic diversity using ISSR marker. Twelve out of 20 tested random primers generated 119 amplicons among the isolates. Cluster analysis of data using Centroid method and Jaccard's similarity coefficient, divided the isolates into seven groups, showing a high genetic diversity among populations of *C. chrysosperma*. Although there was no correlation between geographical origins and the resulting groups of ISSR analysis, but the amount of observed polymorphism (95.8%) was indicated the adequacy of the molecular marker, ISSR, for studying genetic diversity in *C. chrysosperma* isolates. According to our knowledge, this is the first report on the study of genetic diversity of populations of *C. chrysosperma* using ISSR marker. [Khadijeh Abbasi, Khalil Berdi Fotouhifar and Ali Reza Zebarjadi (Iran). Archives of Phytopathology and Plant Protection, 48(1): 327-335, 2015]

**Drenching Efficacy of Imidacloprid and Thiamethoxam against Dubas Bug, *Ommatissus lybicus* (Hem: Tropiduchidae).** Dubas bug, *Ommatissus lybicus*, is one of the key pests of date palms in Iran. Chemical control is the most conventional control method of this dangerous pest. The aim of this investigation was to compare control efficacy of drenching as compared to foliage chemical spray. The study was conducted in a randomized complete block design with 10 treatments and 3 replications (trees) in a completely infested date palm grove. Treatments included imidacloprid SC350 (Confidor®) and thiamethoxam WG250 (Actara®) by foliar spraying (4 g/tree) and by drenching method (10, 20, 80, and 100 g/tree), diazinon EC600 (40 ml/tree) as a recommended insecticide for foliar spraying, in addition to the check (without treatment). The nymph population and number of honeydew drops were recorded one day before and 7, 14, and 120 days after treatment. Insecticide residue of date palm and cost/benefit ratio were calculated. The results showed that all foliage application treatments had more efficacy compared to drenching treatments at 1 and 2 weeks after spraying but at 120 days after drenching, thiamethoxam (80 g/L) and imidacloprid (100 g/L) had 100% efficacy, while the efficacies of thiamethoxam, imidacloprid, and diazinon foliar spraying was zero. The residue of date fruit treated by high doses of drenching was not detectable. The highest cost/benefit ratio belongs to imidacloprid foliage spray (24.86) followed by imidacloprid drenching (15.67). The lowest ratio belongs to thiamethoxam drenching (3.12). Comparison of different concentrations of neonicotinoid drenching revealed that high concentration of thiamethoxam and imidacloprid was more than two times effective. [R. Arbabtafti, A. Sheikhigharjan, A. Hosseini Gharalari, R. Damghani, M. R. Tajbakhsh, and K. M. Arab Jafari . (Iran) Egypt. Acad. J. Biolog. Sci., 6(1): 43 – 52, 2014]

## JORDAN

**Evaluation of Okra Landraces and Accessions Response to the Root-Knot Nematode, *Meloidogyne javanica*.** Thirty-seven landraces and accessions of okra were evaluated under controlled

growth conditions; seven of them were further evaluated under open field conditions for their response to the root-knot nematode, *Meloidogyne javanica* in Jordan. Their degree of susceptibility or resistance ranged from highly susceptible to moderately resistant. International landraces; TOT 581 (from Bangladesh), Egypt Green (from Egypt), TOT 7963 (from Guatemala), TOT 2739 (from Malaysia), Palestine landrace, TOT 7957 (from USA), TOT 7346 (from Vietnam) and USA red and some local Jordanian landraces (Jordan 12, Jordan 34, and Jordan 169) were found moderately resistant (root galling index (RGI) is 2 and reproductive factor (RF) ranged from 1-5). Egypt Red, Jordan 3, Jordan 8, Jordan 48, Jordan 52, Jordan 84, TOT 1767 (from India), India Prabhani, India Sade, TOT 7159 (from Malaysia), TOT 7164 (from Myanmar), TOT 7101 and 7102 (from Philippines), TOT 7343 and 7345 (from Vietnam), and TOT 7966 (from Yugoslavia) were moderately susceptible (RGI=3 and RF ranged from 3 to more than 5). Egypt Green, Egypt Red, Jordan 8 and USA lee gave moderately resistant reactions under open field conditions. Therefore, more efforts should be directed toward intensive breeding of okra for high resistance to the root-knot nematode.[ Muwaffaq R. Karajeh, Naser Moh'd Salameh (Jordan). Jordan Journal of Agricultural Sciences, 11(3), 2015].

**Significance of the Larval Population Size of the Cereal Leafminer *Syringopais temperatella* Led. (Lepidoptera: Scythrididae) and the Diapausing Depth in the Soil on the Yield Variables of Wheat and Barley.** The cereal leafminer, *Syringopais temperatella* Led. is one of the most serious insect pests of wheat and barley in the Near East and neighboring countries. Deep plowing has negative impacts on soil-inhabiting pests. Therefore, it was of vital importance to know the soil depth at which the pest larvae diapause to determine the right plowing depth to facilitate pest control. Soil samples were collected at four different soil depths from a highly infested field and these samples were used to plant wheat and barley seeds in pots. Results revealed that foliage infestation rate and larval population size in plant leaves were higher on plants grown in soil taken from deeper soil depths than from shallower ones. Barley yield in the control treatment was significantly higher than those in the four soil depths, while for wheat, there were no significant differences in the yield among the soil depths treatments including the control. There was a reduction in the grain yield and in the dry straw mass of plants that were planted in soils taken from deeper depths since they contain larger numbers of pest larvae which attacked plant leaves after getting out of dormancy. Results also showed that the leaf infestation rate was positively correlated with the larval population size in the soil; meanwhile, the grain yield and the dry straw mass were negatively correlated with the larval population size.[ Firas Ahmad Al\_Zyoud, Ihab Husni Ghabeish(Jordan). Jordan Journal of Agricultural Sciences, 11(3), 2015].

**Checklist of Host Range of Root-Knot Nematodes (Meloidogyne species and races) in Jordan.** Root-knot nematodes, RKNs (Meloidogyne species and races) are widely distributed throughout the irrigated agricultural areas in Jordan which differ in their environmental conditions. In this study, host plant range of local populations of RKNs was revised in Jordan and new host samples were collected from some agricultural areas. Thirty one plant species belonging to 19 different plant families were reported as hosts for RKNs in Jordan. Some plant species were recorded for the first time as new natural hosts including: rosemary (*Rosmarinus officinalis*) to *M. incognita* race 1, jungle rice (*Echinochloa colona*), and Mallow (*Malva sylvestris*) and wild barley (*Hordeum spontaneum*) to *M. javanica*. Some of the studied areas e.g. Al-Eina, Karak was recorded as a new site for RKNs. The results of this study may provide useful information for the management of RKNs in Jordan. [Muwaffaq Ramadan Karajeh (Jordan). Jordan Journal of Agricultural Sciences, 11(3), 2015].

## PAKISTAN

**Insect growth regulatory bioactivities of essential oils of four medicinal plants towards different strains of stored grain insect pests.** Safety of stored products can be enhanced by regulating the growth of different stages of insect pests. To prove this view, present study investigated insect growth regulatory efficiencies of four locally grown plants (*Datura stramonium*, *Eucalyptus camaldulensis*, *Moringa oleifera* and *Nigella sativa*) against different strains of three major insect pests (*Tribolium castaneum*, *Trogoderma granarium* and *Cryptolestes ferrugineus*) of stored commodities. Test insects were released on diet treated with different concentrations (5, 10, 15 and 20 %) of essential oils by keeping constant temperature of  $30 \pm 2$  °C and  $65 \pm 5\%$  relative humidity. Essential oils significantly reduced the number of larvae emerged from eggs, pupal formation from larvae and adult emergence from pupae. *D. stramonium* was found most

active overall insect growth inhibitor which significantly reduced number of larvae emerged 87.76 (152.07 control), 27.07 (39.10 control) and 38.9 (50.10 control), pupae formed 44.8 (87.71 control), 10.275 (21.58 control) and 23.28 (37.01 control)] and adult emerged 36.78 (85.60 control), 21.59 (39.80 control) and 38.28 (75.81 control) against *T. castaneum*, *T. granarium* and *C. ferrugineus*, respectively. Higher concentration of essential oils strongly reduced test insect development. Results clarified that the essential oils can control insect pests of stored products by disturbing their normal development. [Mansoor ul HASAN, Shahzad SALEEM, Imran FARAZ.(Pakistan).10<sup>th</sup> Conference on Integrated Protection of Stored Products, IOBC/wprsn, Zagreb, Croatia 28-29/6/2015.]

## SAUDI ARABIA

**Identification and Control of the Causative Agent of Chalkbrood Disease in Honey Bee, *Apis Mellifera* L. Colonies in Saudi Arabia.** Chalkbrood disease is an important disease of honeybee brood caused by the fungus *Ascosphaera apis* (Maassen and Claussen). The disease is wide spread in many countries. The most accurate method for disease detection is using DNA-based technologies in order to effectively control the pathogen. The aim of the recent study is to isolate, purify, and identify the pathogen morphologically and molecularly and to control it *in vitro*. Infected larvae were collected from different locations of Saudi Arabia for pathogen isolation and genomic DNA extraction. Molecular identification of the pathogen revealed that two strains could be found in the same fungal culture and each mating type could have either C or T at this position. Sixteen antioxidants and free radical scavengers were screened as growth inhibitors of *A. apis*. All the tested materials showed inhibitory effect on the growth of *A. apis* *in vitro* compared to control, but these effects were variable. Acetyl salicylate was found to be the most effective material inhibiting growth of the fungus compared to other materials. Further work should be done to test this material for bee safety and product residues. [Ayman Ahmed Owais (Saudi Arabia). Bull. Ent. Soc. Egypt, Econ. Ser., 41: 29 – 43, 2015].

**Diversity of insect floral visitors and their role in pollination of wild jujube, *Ziziphus nummularia* (Burm. f. Wight et Arn.) in hot-dry environment.** *Ziziphus nummularia* is widely distributed in sandy and stony soils of arid and semi arid regions. The plant is common in Saudi Arabia representing a major source of *Ziziphus* honey; one of high valued honeys in the Arabian Peninsula. The occurrence of such heat and drought tolerant plants have a great impact in combating desertification as well as their multiple uses, e.g. animal forage, fuel, fencing, shadow, and remedy. There is insufficient data of the floral visitors and their role in pollination of *Z. nummularia* in Saudi Arabia. The present study was carried out in two locations in Rawdhat-Khoraim oasis north-eastern Riyadh, Saudi Arabia (between 25°30'- 25" N and 47°46'- 30" E at 557.5 m above sea level). Floral visitors of the tested plant were collected and their potential role in pollination was studied. The flowering phenology of *Z. nummularia* developed in two days and the flowers were visited by a variety of floral visitors. The majority of floral visitors were: five bee species (Families: Apidae, Halictidae and Megachilidae); six wasp species (Families: Braconidae, Chrysididae and Eucharitidae); five fly species (Families: Calliphoridae, Chloropidae and Muscidae); four beetle species (Families: Curculionidae and Dermestidae); one butterfly species (Family: Lycaenidae); and one plant bug species (Family: Miridae). The major dominant species of floral visitors were honeybees, *Apis mellifera*, therefore it was considered as a major pollinator. There was a significance of fruit percentages of per nodes in caged and non-caged flowers, but it was higher in fly-abundant location than in bee-abundant location. [Ayman Ahmed Owais (Saudi Arabia). Bull. Ent. Soc. Egypt. 92: 23 – 35, 2015].

**Variation in a molecular marker for resistance of Saudi date palm germplasm to *Fusarium oxysporum* f. sp. *albedinis* the causal agent of Bayoud disease.** *Fusarium oxysporum* f. sp. *albedinis* (FOA) is a seed- and soil-borne vascular wilt pathogen that causes a very serious and destructive disease of date palm (Bayoud disease). FOA is not currently known to occur in Saudi Arabia, but the disease has been moving eastward from its origin in Morocco and Algeria. The main objective of this study was to evaluate Saudi Arabian date palm germplasm at the molecular level to assess the presence of R or S plasmid. We evaluated 711 trees representing 42 date palm varieties in Saudi Arabia with a mitochondrial molecular marker and sequenced 64 of the diagnostic PCR amplicons. Most of the trees (628/711) carried the R-plasmid which is associated with Bayoud resistance against FOA fungus. The other 83 trees carried the S-plasmid and are predicted to be susceptible. All amplifications from putatively resistant trees had the



same DNA sequence. Moreover, the sequence of the Saudi resistance amplicon was identical to the sequence of Moroccan resistance DNA publically available in NCBI-GenBank database. All the sensitive trees from Saudi Arabia shared a common DNA sequence. This sequence differed from the Moroccan susceptible one at seven unique mutations including five single nucleotide polymorphisms (SNPs) and two insertion/deletion (indels) regions. The uniformity of the sequences means that the introduction of new germplasm to Saudi Arabia will be easily detected. The relatively high frequency of putative resistance means that if/when this disease enters the Kingdom that most trees should be resistant. [ Amgad A. Saleh, Mahmoud H. El\_Komy, Anas Eranthodi, Anwar S. Hamoud, and Younes Y. Molan (Saudi Arabia). *Europ. J. Plant Pathol.* 143(3): 507-5014, 2015].

**Selection of spring bread wheat genotypes for resistance to cereal cyst nematode (*Heterodera avenae* Woll.) based on field performance and molecular markers.** The cereal cyst nematode (CCN), *Heterodera avenae* Woll., is a devastating root nematode parasite of wheat (*Triticum aestivum* L.). This study aimed to screen wheat germplasm for resistance to CCN. The performance of 17 genetically diverse wheat genotypes (local and international material) were evaluated for two years (2009 and 2010) in a *H. avenae*-naturally-infested field at the Hial region, north Saudi Arabia. Results show that the tested wheat genotypes were significantly different in field performance and resistance to CCN. The grain yield ranged from 4.58 tons/ha for cv. Yecora Rojo (the susceptible) to 8.2 tons/ha for the genotype 15-SAWYT-31. Ten local genotypes were designated as resistant. The local cv. KSU 119 was the most resistant genotype (no. cysts/plant = 0.7) among all the genotypes tested. In addition, microsatellite markers linked to *Cre1* and *Cre3* genes were used. The dendrogram generated using SSR data divided wheat genotypes into two main clusters. Ten out of 17 wheat genotypes (LNM-72, LNM-99, LNM-126, LNM-136, KSU118, L11-8, L11-17, L11-21, KSU 119, and AUS-30851) had both *Cre* genes and were found in the same sub-cluster. All these genotypes, except AUS-30851, LNM-72 and L11-17, were found to be resistant to CCN. Therefore, *Cre3*, *Cre1* and other *Cre* resistance genes are now used in our marker-assisted selection (MAS) programs to identify CCN-resistant wheat genotypes. [Khaled A. Moustafa, Abdullah A. Al-Doss, Mohamed I. Motawei, Solaiman Al-Otayk, Ahmed A.M. Dawabah, Ahmed L. Abdel-Mawgood, Suloiman M. Al-Rehiyani, and Ahmad S. Al- Hazmi (Saudi Arabia). *Plant Omics* 8(5): 392-397, 2015].

## SYRIA

**The preliminary record of the predator *Acletoxenus formosus* (LOEW, 1864), and evaluated its predation ability on the whitefly on cabbage in Lattakia, Syria.** The larval stage of the predator *A. formosus* was isolated from whitefly colonies on cabbage in Lattakia in the Bassa region during the period from May through July 2012, and placed in plastic petri dishes, then transferred to the laboratory. The samples were incubated at 25±2 °C and photoperiod of 12:12 hr (light: dark) and relative humidity of 60%. After emergence, the adult flies were identified by using special identification key for this insect, and were transferred to a wooden box equipped with fluorescent lighting and contained cabbage leaves infested white flies, and reared for five generations within the same previous conditions. The efficiency of predation of the larval stage of the *A. formosus* was evaluated by removing cabbage leaves that have eggs deposited on them and placed in a plastic petri dish with a filter paper moistened with distilled water to maintain leaves turgidity for as long as possible. The emergence of the larval stage and the predation process were observed by using an optical microscope. The predator larvae attacked different ages of whitefly nymphs emptied their internal content completely, leaving behind the outer structure only. The larvae predation efficacy was estimated by determining the ratio of the number of empty structures resulting from predation to the number of predator larvae on a single leaf, starting from the emergence of the predator larvae until reaching the pre-pupal stage. The average number of a predator larvae recorded was 15/leaf, and the average predation efficacy was 34 whitefly nymphs/predator larva with a range of 27-36 [Wala Jaber Bou Hasan and, Lattakia Centre for Mass Rearing of Natural Enemies, Directorate of Agriculture, Syria, Technical Report, 2015].



## TURKEY



**Mortality effects of selected native *Beauveria* isolates on three coleopteran pests of stored wheat under controlled conditions.** Important pests of stored grains include several coleopteran species with worldwide distribution causing considerable product loss unless their populations are suppressed. Currently their management mainly depends on use of chemical insecticides despite their toxic residues on final products and environmental hazards. A promising alternative to these substances is the use of microbial control agents including entomopathogenic fungi. This study presents mortality effects of 9 *Beauveria* isolates, selected from 126 entomopathogenic fungal isolates isolated in Turkey, against adults of *Sitophilus oryzae*, *Rhyzopertha dominica* and *Oryzaephilus surinamensis*. Probit analysis was performed according to 14 days of post inoculation mortalities over 20 adults placed within 40 gr of wheat mixed with 50, 100, 500, 1000, 5000 ppm fungal conidia prior to onset of the tests. The experiment was conducted at 26±2°C, 65±5% relative humidity in darkness with four replicates. Mortality levels varied according to target insect species and the isolates tested. *S. oryzae* was the most resistant species to all fungal challenges (LC50 >1000 ppm). Promising isolates with LC90 around 1000 ppm or less were detected as potential biological control agents against *R. dominica* and *O. surinamensis*. The effects of three isolates under different ambient conditions (15 – 30 oC and 40 – 75 % R.H.) were also presented. [Mehmet Kubilay ER, Ali A. IŞIKBER, Hasan TUNAZ, Arife ÖZ, Fadime AYDIN, Ümmühani Tuğba ÖZBALIKÇIOĞLU(Turkey).10<sup>th</sup> Conference on Integrated Protection of Stored Products IOBC/wprsn, Zagreb, Croatia 28-29/6/2015].

## TUNIS

**IPM approaches for stored date protection in Tunisia: Emphasis on alternative control methods against the date moth *Ectomyelois ceratoniae* Zeller (Lepidoptera: Pyralidae).** In Tunisia, dates are an important and valuable export commodity, 16 % of the total value of agricultural exports is coming from the date industry. Moreover, dates presented 6.6 % of the total value of agricultural production. Stored dates are vulnerable to high infestation rates by pyralid moth pests, mainly the carob moth *Ectomyelois ceratoniae* (Zeller). This devastating pest induced significant economic losses during storage. It caused loss of weight and downgrading of the commercial value of dates. It infested 20 % of the harvestable date crop annually. Current available methods for postharvest control are based on fumigation using synthetic fumigants mainly phosphine. However, harmful effects of these chemicals on human health and their side effects on environment, encourages the search for safer and effective alternatives. This paper reported results of several trials conducted using some natural pesticides derived from plants (essential oils), microorganisms (Spinosad) and inert dust (Diatomaceous earth) for the control of different developmental stages of *E. ceratoniae*. Results indicated that these alternatives exhibited ovicidal, larvicidal and adulticidal potentialities against *E. ceratoniae*. The four eucalyptus essential oils tested (*Eucalyptus camaldulensis*, *E. leucoxydon*, *E. dumosa* and *E. transcontinentalis*) displayed strong toxicity against adults and all larval stages. *E. transcontinentalis* accomplished 100 % mortality of *E. ceratoniae* adults after 2 h of exposure at the concentration of 143 µl/l air. Additionally, *E. leucoxydon* oil achieved 100 % mortality of fifth instar after 48 h of exposure at the dose 132 µl/l air. On the other hand, Spinosad showed an interesting ovicidal activity against *E. ceratoniae* eggs. At the concentration 1 ppm, 85 % of egg mortality was obtained. Additionally, the use of diatomaceous earth exhibited promising results. No closed eggs were obtained after treating eggs with Protect-It\_ at the dose of 10 g/kg of dates. [Jouda MEDIOUNI BEN JEMÂA.(Tunis).10<sup>th</sup> Conference on Integrated Protection of Stored Products IOBC/wprsn, Zagreb, Croatia 28-29/6/2015.]

**Persistence of Toxicity in Four Natural Extracts Controlling *Tetranychus urticae* as Affected by Tween®20 Supply.** Natural plant extracts are considered as promising tools to fight pests such as phytophagous mites and particularly against *Tetranychus urticae* that causes damage of economic importance in agriculture. The aim of the present work was to analyze the persistence of their biocidal activity and to investigate the possibility of extending their activities against *T. urticae*. Three essential oils from *Deverra scoparia*, *Hertia cheirifolia* and *Santolina africana*, and one distillate from *Allium sativum* were effective in controlling the two-spotted spider mite *T. urticae*. The persistence of the plant extracts was evaluated and compared with and without a non-ionic surfactant composed of monosorbitanoleate (Tween®20). Without Tween®20 and five days following treatment, the four extracts rapidly lost their toxicity against *T. urticae* indicating low persistence of their biological activity. With Tween®20, their persistence significantly increased and lasted 10 days. The combination with Tween®20 significantly

increased the differences between the respective persistence of the four plant extracts with *S. Africana* being the most persistent extract and *D. scoparia* the least persistent. Even if possessing a high toxicity against *T. urticae*, natural plant extracts have only a poor persistence of their toxic effect. The enhancement of their efficacy and the increase of their persistence achieved by the use of Tween®20 make them a promising tool for pest management of the two spotted spider mite *T. urticae*. [Attia, S., Grissa-Lebdi, K., Raki, A., Hance, T., and Mailleux, A.C.. Persistence of toxicity in four natural extracts controlling *Tetranychus urticae* as affected by Tween®20 supply. (Tunis) Tunisian Journal of Plant Protection, 10: 35-44, 2015.]

**Morphometry and biological parameters of different instars of the giant brown peach aphid: *Pterochloroides persicae* Cholodkovsky 1899 (Hemiptera: Aphididae) in Tunisia.** Individuals of *Pterochloroides persicae* reared under controlled conditions were used to describe the morphometry and biological parameters of instars of this aphid. Our results showed that *P. persicae* developed four instars before reaching the adult stage. The first and the second larval instars both have five antennal segments, although the others have six segments. A significant difference was observed between instars in the first antennal segment ( $F = 56.11$ ;  $df = 4$ ,  $P = 0.026$ ), in the body length ( $F = 115.38$ ;  $df = 4$ ,  $p = 0.014$ ) and in the cauda length ( $F = 72, 77$ ;  $df = 4$ ,  $p = 0.021$ ). The study of developmental and reproductive performance of *P. persicae* showed that the first instar lasted for 3.17 days, the second instar 2.35 days, the third instar 4.68 days, the fourth instar 5.035 days and the adult 6.86 days. We demonstrate also that the generation time lasted for 15.26 days. The life span was 22.11 days. As for fecundity, a single female of *P. persicae* gave birth to  $29.68 \pm 7.38$  nymphs with an average reproductive rate per day of  $4.32 \pm 2.16$ . [Lassaad Mdellel and Monia Kamel Ben Halima (Tunis). Annales de la Société entomologique de France (N.S.), 2015. <http://dx.doi.org/10.1080/00379271.2015.1054706>].

**Laboratory evaluation of *Pauesia antennata* (Hymenoptera: Braconidae), specific parasitoid of *Pterochloroides persicae* (Hemiptera: Aphididae).** *Pauesia antennata* Mukerji as the unique parasitoid of the giant brown peach aphid, *Pterochloroides persicae* Cholodkovsky is considered to be the most effective biological control agent of this pest. In this study, the assessment of selected biological parameters of *P. antennata* demonstrated that the longevity of mature parasitoid was  $3.90 \pm 0.22$ , the developmental time was  $14.48 \pm 1.05$  and the life span was  $19.46 \pm 0.68$  days. The maximum flight activity and oviposition were observed at the second and third days of the parasitoid lifespan. The parasitism, emergence rates and the sex ratio were affected by the variations in the number of *P. persicae* relative to each population of the parasitoid. [Lassaad Mdellel, Monia Kamel Ben Halima and Ehsan Rakhshani.(Tunis). J. Crop Prot, 4 (3): 385-393, 2015].

**Effect of host plant on morphology of *Pterochloroides persicae* Cholodkovsky 1899 (Hemiptera, Aphididae).** Morphological differentiation of insect population in relation to the use of different host plants is an important phenomenon that leads to ecological specialization. In this study, we describe the morphological variation of *Pterochloroides persicae* Cholodkovsky among 1899 individuals originating from three host-plants, peach, almond and plum, from two localities in Tunisia, which has similar climatic conditions. 13 morphological characters were investigated in 90 wingless aphids collected from plants of the three host species. A significant difference was observed in length of antennal segment I, IV and V, in length of body and in length of siphunculi. Results indicated that host plant species can affect the morphology of *P. persicae*. [Lassaad Mdellel, Monia Ben Halima Kamel (Tunis).Journal of Entomology and Zoology Studies. 3(3): 324-327, 2015].

## ❖ Postgraduate Arab Students Activities Abroad

### MSc THESIS TOPICS "SUSTAINABLE IPM TECHNOLOGIES FOR MEDITERRANEAN FRUIT AND VEGETABLE CROPS" 2014-2015 (IAM-BARI)

- 1- **Integrated pest management of the tomato leaf miner *Tuta absoluta* (Meyrick) in tomato fields in Egypt.** Tomato (*Solanum lycopersicum* L.) is one of the most important vegetable crops worldwide. In Egypt, tomato is cultivated in 3 annual plantations. The tomato leaf miner, *Tuta absoluta* (Meyrick), (Lepidoptera: Gelechiidae) is a recent devastating pest of tomato crops worldwide and a new and exotic pest in Egypt. The efficacy of integrated control methods against

the pest was evaluated in 2014 (September – December) on the Nili tomato plantation in Fayoum Governorate, Egypt. The best rate of infestation reduction was given by the release of egg parasitoid *Trichogrammatoidea bactrae* mass trapping (plot B), followed by application of Biotrine and Fytomax + mass trapping (plot A), and the use of insecticides (control plot C). The respective seasonal rates of infestation were 9.2, 11.1 and 29.3%, respectively. The highest yield and cost benefits were recorded for plot (B). [Goda Nizar Fahmi Mohamed Salem. (Egypt), MSc, IPM of Mediterranean Fruit Trees, 2014-2015].

- 2- **Efficacy of different eco-friendly bio-rational insecticides for sustainable management of *Tuta absoluta* (Meyrick) & *Bemisia tabaci* (Gennadius) on greenhouse tomatoes.** The global invasion of *Tuta absoluta* (Meyrick) and *Bemisia tabaci* (Gennadius) as insect pests infesting tomato was the main reason for this study. The experiment involved Shifa and Savera F1 hybrid tomato varieties cultivated under greenhouse in Nubaria Governorate, Egypt and ran from mid-August 2014 to mid-May 2015. Infestation suitability assessment of *B. tabaci* and *T. absoluta* between tomato varieties was carried out as a preliminary measure. The experiment tested the efficacy of different concentrations (LC100, LC50 and LC25) of commercial ecofriendly bio-rational insecticides, including Nimbecidine EC, Tracer, Dipel®2x, Bio- A.Y. 2014-2015 397 Magic and Bio-Power, for the control of *B. tabaci* and *T. absoluta* based on the number of adults and of larvae, respectively. Productivity assessment was carried out for each bio-insecticide at different concentrations. Spinosad showed very promising efficacy on *T. absoluta* and *B. tabaci*, with 85.52–97.04% and 83.97–94.61% infestation reduction, respectively. Dipel®2x and Nimbecidine EC showed great efficacy, followed by Bio-magic and Bio-power. [Moussa Abdelhameed Moussa Elmaghawry,(Egypt), MSc, IPM of Mediterranean Fruit Trees, 2014-2015].
- 3- **Investigation of viral diseases in an Apulian fig germplasm collection.** A field survey was carried out during Sept-Oct 2014 in an Apulian fig germplasm collection plot in order to evaluate the sanitary status of 74 fig varieties A.Y. 2014-2015 400 for the presence of eight viruses infecting fig in nature. RT-PCR assays were conducted on reverse-transcribed TNA extracted from all the varieties and showed that 97% of plants were infected at least by one virus. The most prevailing viruses in the tested material were Fig Badnavirus (FBV, 88%) and Fig mosaic virus (FMV, 69%), whereas the others, i.e. Fig leaf mottle-associated virus 1 (FLMaV-1), FLMaV- 2, Fig mild mottling-associated virus (FMMaV), Fig latent virus 1 (FLV-1), Fig cryptic virus (FCV) and Fig fleck-associated virus (FFkaV) were present to a lesser extent. In addition, seventeen fig accessions from different varieties were subjected to different sanitation techniques (thermotherapy and/or tissue culture) with the aim of producing healthy fig plantlets for use in a future certification program. After sanitation, repeated RT-PCR tests showed that FLV-1 and FBV resisted the sanitation attempts, whereas a high sanitation rate was obtained for FLMaV-2, FMMaV, FMV and FFkaV. In contrast, FLMaV-1 was still present in some samples. [Khedher Jihene.(Tunisia), MSc, IPM of Mediterranean Fruit Trees, 2014-2015].

#### **PHD AND MSC STUDENTS GRADUATED FROM ARAB UNIVERSITIES IN PLANT PROTECTION 2014/2015.**

- 1- **Investigation of insect pathogenic fungi in artichoke culture and evaluation of their potential in microbiological control against *Capitophorus elaeagni* Del Guercio 1894 (Hemiptera, Aphididae) in Tunisia.** Guesmi-Jouini, Jouda (2015, Doctorate) ISA Chott-Mariem, University of Sousse, Tunisia.
- 2- **Identification of molecular makers associated with second resistance gene to race 0 of *Fusarium oxysporum* f. sp. *ciceris* and resistance genetic determinism study of five populations of Recombinant Inbred Lines (RILs) of chickpea (*Cicer arietinum* L.).** Halila, Imène (2015, Doctorate) Faculty of Sciences of Tunis, University of Tunis El-Manar, Tunisia.
- 3- **Bio-ecology of the almond bark beetle *Scolytus amygdali* (Coleoptera: Curculionidae: Scolytinae) in the coastal region of Tunisia. Identification of natural enemies.** Zeiri, Asma (2015, Doctorate), Faculty of Sciences of Bizerte, University of Carthage, Tunisia.
- 4- **Impact of the cultural techniques on the development of the root and crown *Fusarium* disease of cereals.** Chekali-Ben Alaya.( 2015,Doctorate) INAT, University of Carthage, Tunisia,

- 5-Studying Sex Determination of Date Palm in Seedlings stage Using Molecular and Conventional Markers.** Thaera Khairi Al-Rawi. (2015, Doctorate) Horticulture and Landscape Gardening. University of Baghdad-Iraq.
- 6-Ecological, Biological Study and Characterization Molecular of the Most Important Parasitoids of Leopard Moth *Zeuzera pyrina* L. in Some Apple and Walnut fields in Lattakia.** Jounar Aziz Ibrahim (2015, Doctorate) Plant Protection Department, Faculty of Agriculture, University of Damascus, Syria.
- 7-Studying the possibility of wheat covered smut disease control caused by *Tilletia spp* by using some biological and chemical agents and characterizing the genetic variation of its isolates in Iraq.** Sattar Aziz Shams-Allah. (2015, Doctorate ) College Of Agriculture .University Of Baghdad-Iraq.
- 8-Diagnosis of the *Varroa destructor* on honey bees by using PCR and control it's by using some plant extracts.** Majed Mahmood Esa Slubi. (2015, Master) Plant protection department, College of agriculture. University of Baghdad-Iraq.
- 9-Some aspects of integrity in the management of gray scale insect *Parlatoria blanchardi* (Targioni-Tozzetti) (Homoptera:Diaspididae) on date palm *Phoenix dactylifera* L.** Enas Hameid Majeed Al-Ani. (2015, Doctorate), Plant protection department, College of agriculture. University of Baghdad-Iraq.

## ❖ Some Plant Protection Activities of FAO and Other Organizations

### DESERT LOCUST SITUATION

**Situation level: Caution**

#### **General Situation of the Desert Locust during September 2015 and Forecast until mid-November 2015 provided by the FAO Emergency Centre for Desert Locust (ECLO).**

The Desert Locust situation remained calm during September. Despite good rainfall and favourable ecological conditions, only limited breeding has been detected so far in the northern Sahel of West Africa. Nevertheless, locust numbers are gradually increasing and there may be more locusts present than seen during surveys. Once vegetation begins to dry out in October there is a low to moderate risk that locusts may concentration and form a few small groups in parts of Mauritania, Mali, Niger, Chad and Sudan. There will also be a gradual shift of locusts from southern to northwest Mauritania, from northern Mali and Niger to southern Algeria, and from the interior of Sudan to the Red Sea coast. Therefore, caution should be exercised and strict vigilance maintained in all countries during October and November.

**Western Region.** The situation remained calm in September. Only low numbers of locusts were seen during surveys in southern Mauritania, northern Niger, and central and eastern Chad. There were unconfirmed reports of locusts in northern Mali. As ecological conditions were unusually favourable over a large portion of the summer breeding areas in the northern Sahel this year and not all areas could be surveyed, there may be more locusts present than reported. Consequently, there is a potential risk that groups may form as vegetation starts to dry out. During October, an increasing number of adults are likely to appear in western Mauritania as well as in the north and in adjacent areas of Western Sahara where unusually good rains fell in late September. Locusts may also appear in southern and central Algeria. Small-scale breeding could cause locust numbers to eventually increase in these areas.



**Central Region.** The situation remained calm during September. Although very few locusts were seen during surveys, ecological conditions remained favourable and some undetected breeding may have occurred in Sudan. Consequently, there is a risk that locust numbers may increase in October and groups could form as vegetation dries out. The adults are expected to move to areas of recent rainfall west of the Red Sea Hills and eventually reach the winter breeding areas along the Red Sea coast. In Eritrea, no locusts were seen during a survey in the western lowlands but good rainfall and runoff occurred in parts of the winter breeding areas along the Red Sea coastal plains. No surveys could be carried out in Yemen where the situation was not clear but breeding conditions may be improving along the Red Sea and Gulf of Aden coasts as a result of recent rainfall. In northern Somalia, scattered adults may appear in November on the northwest coastal plains where small-scale breeding could occur. No locusts were seen during surveys in Egypt, Saudi Arabia and Oman.

**Eastern Region.** The situation remained calm during September. Only scattered adults were detected in the Cholistan Desert of Pakistan near the border with India. No locusts were seen in adjacent areas of India. By the end of the month, the monsoon rains had ended. Nevertheless, small-scale breeding is likely to continue early in the forecast period but will decline as vegetation dries out.

For more up to date information about the Desert Locust situation and forecasts, visit the FAO's Desert Locust website: <http://www.fao.org/ag/locusts/en/info/info/index.html> and FAO Commission for Controlling the Desert Locust in the Central Region <http://crc-empres.org>.

**Source:** The FAO Desert Locust Bulletin issued monthly in English and French by the Desert Locust Information Service, AGP Division (Rome, Italy; and Arabic version by the Commission for Controlling the Desert Locust in the Central Region (FAO Regional Office for Near East, Cairo, Egypt

<http://desertlocust-crc.org>).

## ACTIVITIES OF FAO COMMISSION FOR CONTROLLING THE DESERT LOCUST IN THE CENTRAL REGION (CRC)

FAO Commission for Controlling the Desert Locust in the Central Region, in cooperation with Ministry of Agriculture and Fisheries, Oman organizing the 9th sub-regional training courses in the Desert Locust field (Preparedness of Desert Locust Campaign), Salalah from 13- 20 September, 2015. Twenty Two participants from; Bahrain, Kuwait, Iraq, Lebanon, Jordan, Qatar, sultanate of Oman, Syria and United Arab Emirates were attended to the training course. The training course objectives is introduced the steps involved in the preparation and organization of the Desert Locust campaign and put preventive strategy in place for early warning and early reaction in cases of emergency taking into account various measures and good coordination with related authorities in advance .



## ACTIVITIES OF FAO REGIONAL OFFICE FOR NEAR EAST AND NORTH AFRICA (FAORNE)

### Regional IPPC Workshop

The 2015 IPPC Regional Workshop for the Near East and North Africa was organized by FAO Regional Office for the Near East and North Africa (RNE) and the Secretariat of the International Plant Protection Convention (IPPC) in collaboration with the Near East Plant Protection Organization (NEPPO), and the Ministry of Agriculture in Jordan. The workshop was held during 14-17 September, in Amman, Jordan. Forty (40) participants from 14 countries in the region attended the workshop. The objectives of the workshop were: (1) to learn how to analyze draft International Standards for Phytosanitary Measures (ISPMs) and to formulate productive comments using the examples of draft ISPMs for member consultation in 2015; (2) to build phytosanitary capacity, raise awareness on all activities related to the IPPC and among others, and updates on ISPM 15 symbol registration, submission of formal objections to



standards, WTO Trade Facilitation Agreement, International Year of Plant Health and e-Phyto; and (3) to exchange experiences at the regional level on surveillance, emerging pests and other issues of joint interest. The participants were briefed by the IPPC Secretary on the progress on the initiative to declare the International Year of Plant Health in 2020 (IYPH 2020). Two draft ISPMs were reviewed during the workshop on: (1) Arrangements for verification of compliance of consignments by the importing country in the exporting country, (2) revisions to ISPM 15 (Regulation of wood packaging material in international trade) for inclusion of the phytosanitary treatment by Sulphuryl fluoride fumigation and the revision of the dielectric heating treatment. A special technical session was held to share the information and raise the awareness of the National Plant Protection Organizations (NPPOs) on some emerging pests that pose threat to the region. Three presentations were delivered by invited experts from Italy, Sudan and Morocco on the following pests:

- Olive decline disease - *Xylella fastidiosa* - Italy
- Aquatic weed - *Pistia stratiotes* – Morocco experience
- Date Palm Green Pit Scale Insect (*Asterolecanium phoenicis*) – Sudan experience

To address imminent threat of *Xylella fastidiosa* (XF) to the olive production in the region, the participants came up with the below recommendations:

- Organize a regional symposium on XF management measures with involving South European countries,
- Preparing contingency plans on XF for the region,
- Create a network for exchanging information among Mediterranean countries.

### **Inter-regional Workshop on Management of Water Hyacinth, *Eichhornia crassipes*.**

An inter-regional workshop on the management of aquatic weed – Water Hyacinth (WH), *Eichhornia crassipes* was held in cooperation between FAO Regional Office for the Near East & North Africa and the Faculty of Agriculture of Mansoura University. The workshop took place at the Faculty of Agriculture of Mansoura University during 25-27 August 2015. Nineteen participants from five countries at Nile River basin have participated in the workshop (Egypt, Sudan, Ethiopia, Kenya and Tanzania). The workshop had the below objectives:



- To understand the current situation of water hyacinth in the Nile basin countries and discuss the challenges facing the sound management of the weed and the programs and strategies used for its management in each country.
- To exchange experiences and knowledge about the management of water hyacinth between the participating countries of the Nile Basin.
- To increase the knowledge and practical skills of the innovative methods of biological control of water hyacinth and its applications using safe, nonpolluting, and cost-effective bioherbicides.
- To enhance the collaboration among specialists and related institutions within the Nile basin countries to implement biological control methods for sustainable water hyacinth management.
- To prepare the necessary recommendations to overcome the obstacles and challenges faced by participating countries in the implementation of management programs of water hyacinth.
- To discuss the possibility of proposing a regional project or a common framework to assist participating countries in facing of these challenges.

The WH impact on water quantity and quality, biodiversity, transport, as well as the management programs/practices being implemented in the participating countries were presented. The workshop highlighted magnificent role of the bio-control using the natural enemies *Neochetina* weevils in limiting the infestation of the WH in most of the countries. The promising research results on the use of bio-herbicide (Mycoherbicide) formulated from *Alternaria eichhorniae* developed by the scientists at the Mansoura University were introduced with a practical lab demonstration of the isolation of weed pathogens, pathogenicity testing of microbes, mass production– spore production, bioherbicide formulation techniques and evaluation of disease severity using a disease scale. The participants recognized the importance of the networking between the countries for information and knowledge sharing to tackle the problem of WH in broader integrated manner in the infected countries. The participants recommended to

develop an interregional project to address WH within the framework of the integrated management of invasive alien aquatic plants in Africa.

### **Workshop on the Management of Red Palm Weevil**

A workshop on the Management of Red Palm Weevil (RPW), *Rhynchophorus ferrugineus* was organized by the FAO Technical Programme in Saudi Arabia Kingdom (KSA) and the Ministry of Agriculture in Saudi Arabia Kingdom. The workshop was officially inaugurated by H.E. Mr. Abdulrahman Al Fadhly, Minister of Agriculture in KSA. The workshop was convened during 10-12 May in Riyadh with one day field visit to date palm plantations in Al Ahssa area to observe the RPW management practices applied on the field. Around 22 invited experts from different countries representing (Arab countries, Asia, Europe and Americas) shared the info of RPW management and their experience with the audience from different sectors involved in date palm production in KSA. The workshop aimed to (1) review the current RPW control and management practices; and institutional and arrangement in participating countries, (2) exchange the experience and technologies on management of RPW between participating experts from different part of the world, (3) propose a road map and information exchange system for the control and management of RPW.



**Wrap up workshop of the FAO Regional Project on *Tuta absoluta* management.** The wrap up workshop of the FAO TCP Project on *Tuta absoluta* management in the Near East Region was held during 18-19 August 2015 in Beirut, Lebanon. The workshop aimed at (1) Reviewing the progress made in the project implementation in the participating countries; (2) Presenting the project findings/achievements, success stories, lessons learned, conclusions and recommendations on both; countries and regional levels; (3) Suggesting and discussing the project future sustainability steps to be taken on the national and regional levels. The Project was officially launched in March 2013 to support the management programs of the invasive pest *Tuta absoluta* in five countries in the region (Egypt, Iran, Jordan, Lebanon and Yemen). Forty-eight FFSs with (857 farmers) were established to enable farmers to control the pest using IPM and biological control tools to minimize pesticides applications. More than 4600 farmers at the regional level were also trained on IPM of *Tuta absoluta* through field seminars and field days; and more than 600 technical staff were trained in IPM-FFSs establishment and facilitation, biological control and Pest Risk Analysis (PRA). Farmers became familiar with the IPM approach and became aware on the importance of the collaboration among themselves to control and limit the spread the pest in the same area. Farmers realized the importance and benefit of IPM approach in reduction of production cost through decreased fertilizers and pesticides application that were reduced from more than 16 applications to 8 pesticide applications during the season (in some countries) using bio-pesticides or IPM friendly pesticides. With IPM-FFSs approach, farmers became more familiar with how to read the pesticide label and to understand the information on its (toxicity, pre-harvest period, etc.).

**Pest Risk Analysis Training Course.** The FAO Regional Office for the Near East and North Africa organized a training programme on pest risk analysis (PRA) held in Khartoum, Sudan during 2-11 November 2015. Pest risk analysis (PRA) is an important tool for agriculture, trade, food security and the environment. This science-based process helps countries protect their plant resources from pests and fulfill their international obligations. PRA collects and analyzes scientific information and supports key decisions to protect plant health. These decisions have cascading effects on agricultural production, accessing and sustaining trade markets, enhancing food security and protecting the environment and biodiversity. PRA is a process of evaluating biological or other scientific and economic evidence to determine whether an organism is a pest, whether it should be regulated, and the strength of any phytosanitary measures to be taken against it. Twenty plant quarantine officers from the National Plant Protection Organization (NPPO) in Sudan have been trained through formal presentations by experienced PRA expert, group exercises and interactive discussions. The training provided the participants with the background and knowledge on the purpose of PRA and how PRA fits into the IPPC and hands-on experience in conducting PRAs. The





trainings aimed at strengthening the capacities of the National Plant Protection Organizations and support for creation of qualified PRA national team in Sudan.

### Evaluation of the role of FFSs for Anchoring Sustainable Integrated Pest Management by Small Scale Farmers.

A workshop on the evaluation of the role of Farmer Field School (FFS) for Anchoring Sustainable Integrated Pest Management by Small Scale Farmers in Near East & North Africa (NENA) Region was held in Tunis, October 26-28, 2015. The workshop was organized by the FAO Regional Office for NENA Region and the Near East Plant protection Organization (NEPPO). Twenty-five participants from 12 countries in the NENA Region participated in the workshop.



The workshop aimed to:

- To promote the positive attitudes and the importance of the IPM for the risk reduction associated with the use of agro-chemicals by small scale farmers;
- To promote the success stories on eco-friendly pest control methods validated in the region;
- To review the past experience/success stories of the NENA countries in FFS-IPM through FAO and other projects to support small scale farmers;
- Highlight the advantages and impact of the FFS on improvement of farmers' farming attitude, production, livelihood and profitability;
- To discuss the lessons learnt from the past experience and identify and address any failure aspects/obstacles challenging the success of the FFS;
- To come up with feasible recommendations/action plan to improve/sustain the IPM-FFS in the region.

The participants identified the successes, gaps and challenges of the past FFSs work in the region for the past 10 years experience and proposed the actions to overcome these challenges and suggestions for further development of the FFS. The participants came up also with a proposal for establishment of a FFSs regional network under the umbrella of NEPPO and with the support of the FAO for maintaining the continuity of the established IPM-FFSs achievement and expanding the FFSs scope in the region.

### FAO *Tuta absoluta* Management Manual

The FAO Regional Office for the Near East & North Africa published recently a comprehensive manual on management of invasive pest *Tuta absoluta*. The manual is published in Arabic language with illustrative high resolution pictures. The manual is a simplified practical guide that contains available data on how to detect and identify the pest, monitoring of the pest, assessing the damage, prevention measures and control measures in the open fields and green houses. This manual is an important technical and scientific tool for various interested groups of technicians, researchers and farmers in control and managing the risk of *Tuta absoluta*. The manual could be found through on FAO website through these links (<http://www.fao.org/3/a-i4831a.pdf>) or (<http://www.fao.org/documents/card/en/c/b1cc9663-854a-4946-8097-266b4b46e7f5/>).



## ARAB SOCIETY FOR PLANT PROTECTION NEWS

**The Arab Journal of Plant Protection receives a 1.6 Impact Factor (IF) from “Arab Impact Factor”** It is well known to all scientists that the IF is one of the important measures that determines the importance and credibility of scientific journals within each discipline. The IF reflects how often new published research cites articles from any specific journal, and accordingly, journals with high IF means that they are more important and credible. With support from the Arab Universities Union, a scientific committee of leading Arab scientists from different Arab countries was established recently. The committee has its secretariat in Zoweil City for Science and Technology, Egypt. We are glad to inform all members of the Arab Society for Plant Protection that in the 2015 report of the Arab Impact Factor, where IF values were given to 17 periodicals in the Arab world, the Arab Journal of Plant Protection (AJPP) received an IF of 1.6. Incidentally, this value was the highest among the 17 evaluated periodicals. This should be good news to all members of the Arab Society for Plant Protection, especially those who submitted their research



findings to be published in the AJPP. We also congratulate all members of the AJPP Editorial Board and other colleagues who served as reviewers of the submitted articles, for their sincere effort to improve the quality of the published articles. For more information, readers can check the following link: <http://goo.gl/ahJGVs>

**Arab Society of Plant Protection participation in the International Congress of Plant Protection.** The International Congress of Plant Protection, organized by the International Association of Plant Protection Sciences (IAPPS), which includes most of the plant protection societies around the world, including the Arab Society of Plant Protection (ASPP), was held in Berlin, Germany, 24-27 August 2015. 1200 participants from 95 different countries participated in this congress. The congress program included 360 oral presentations and 800 poster presentations. 33 scientists from eleven Arab countries (Algeria, Egypt, Iraq, Jordan, Lebanon, Libya, Morocco, Saudi Arabia, Sudan, Syria, and Tunisia) participated in this event. Five members of the Executive Committee of ASPP, namely Mohamed Said El-Zemeity, Ibrahim Jboory, Ahmed Heneidy, Safaa Kumari and Khaled Makkouk, attended the congress and made use of this opportunity to hold an ASPP business meeting on August 27, 2015.



**Arab Society for Plant Protection (ASPP) participation in the 5<sup>th</sup> Conference of the IWGLVV in Haarlem, The Netherlands.** The fifth conference of the International Working Group on Legume and vegetable Viruses was held in Haarlem, The Netherlands during the period 30 August-3 September 2015. 112 participants from 29 countries participated in this meeting. The conference scientific program included 44 oral presentation and 42 posters. Three ASPP members from Lebanon (Khaled Makkouk), Syria (Safaa Kumari) and Saudi Arabia (Mohamed Al-Saleh) attended the conference. Dr. Kumari gave a presentation entitled: Distribution and characterization of poleroviruses affecting food legumes in Central/West Asia and North Africa region and Australia. Dr. Al-Saleh gave a presentation entitled: A divergent polerovirus associated with pepper yellowing in Saudi Arabia. The program also included a field trip, where participants visited a seed company and a glasshouse tomato production company.



**Fourth International Conference of Eco-friendly Applied Biological Control of Agricultural Pests and Phytopathogens.** Drs. Monir M. El-Husseini and Ahmed H. El-Heneidy under the auspices of the Egyptian Society for Biological Control of Pests conducted the 4th International Conference of Eco-friendly applied Biological Control of Agricultural Pests and Phytopathogens in Cairo, Egypt, October 19-22, 2015. About 200 participants from 10 countries attended this conference. Several papers were presented in the major sessions on parasitoids, predators, entomopathogens, phytopathogens, IPM, and botanicals in control of pests and diseases, and safety of biopesticides. In addition, a special symposium was conducted on the Management of the Tomato Leafminer, *Tuta absoluta*, October 22, 2015. The *Tuta absoluta* symposium was led by presentations of R. Muniappan, Shoki Al-Dobai, Ahmed El-Heneidy and Hamam Bekhiet. It was followed by discussion and recommendations as follow: 1-Establish a national network involving Scientists, Extension agents, NGOs, Private industries, and farmers. 2-Establish a regional network for the Near East, North Africa, and Mediterranean. 3-Regularly communicate with the *Tuta absoluta* Global Working Group established under IAPPS. 4-Publish a *Tuta absoluta* News Letter (for Global program). 5- Develop a database of *Tuta absoluta* natural enemies in Egypt and the region. 6- Get all specimens (natural enemies collected) identified/ confirmed by a specialist. 7- Organizing an International Workshop on *Tuta absoluta* in Egypt in association with the Arab Society for Plant Protection meeting in November, 2017.



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## The 12<sup>th</sup> Arab Congress of Plant Protection

The Organizing Committee of the 12<sup>th</sup> Arab Congress of Plant Protection which is organized by the Arab Society for Plant protection in collaboration with the Agriculture Research Center of the Ministry of Agriculture and Land Reclamation in Egypt held a meeting in Cairo on November 12, 2015. It was agreed that the congress will be held in Egypt during the period 5-9 November 2017. All the congress sub-committees which covers all the organizational aspects of the congress were established. A congress web site will be established in the very near future. The first announcement of the congress will be out in January 2016. We will keep all ASPP members and all those who are interested to attend this event with all up-to-date news related to the congress in the coming issues of ANEPPNEL.

### ❖ GENERAL NEWS

- **New Record of Red Palm Weevil, *Rhynchophorus ferrugineus* in Basra province, Iraq.** Although Gentry in 1965 mentioned that red palm, weevil found in the province of Basra, but that all the observations and research denies its existence on date palm trees in Iraq despite the prevalence of the weevil in the surrounding countries. In October 2015, Red Palm Weevil appeared in a date palm orchard located near the border with Kuwait in Safwan area. It has been officially registered by the Agricultural Directorate of Basra and in collaboration with the Plant Protection Directorate in Baghdad rapid steps to containment the infestation by using all the available control measures such as burning infected trees, site monitoring by using food traps and the treatment of infected and non- infected palms by insecticides either by injection or spray. This is the first record of *Rhynchophorus ferrugineus* (Olivier, 1790) in Iraq. (Direct contact with the concerned parties). Basra University organized on 19/11/2015 a symposium on the red palm weevil in collaboration with different authorities to discuss the procedural and preventive measures that must be taken rapidly to control insect and prevent the spread of the remaining groves.
- **Whole genome re-sequencing of date palms yields insights into diversification of a fruit tree crop.** Date palms (*Phoenix dactylifera*) are the most significant perennial crop in arid regions of the Middle East and North Africa. Here, we present a comprehensive catalogue of approximately seven million single nucleotide polymorphisms in date palms based on whole genome re-sequencing of a collection of 62 cultivars. Population structure analysis indicates a major genetic divide between North Africa and the Middle East/South Asian date palms, with evidence of admixture in cultivars from Egypt and Sudan. Genome-wide scans for selection suggest at least 56 genomic regions associated with selective sweeps that may underlie geographic adaptation. We report candidate mutations for trait variation, including nonsense polymorphisms and presence/absence variation in gene content in pathways for key agronomic traits. We also identify a *copia*-like retrotransposon insertion polymorphism in the R2R3 myb-like orthologue of the oil palm *virescens* gene associated with fruit colour variation. This analysis documents patterns of post-domestication diversification and provides a genomic resource for this economically important perennial tree crop.[Khaled M. Hazzouri, Jonathan M. Flowers, Hendrik J. Visser, Hussam S. M. Khierallah, Ulises Rosas, Gina M. Pham, Rachel S. Meyer, Caryn K. Johansen, Zoë A. Fresquez, Khaled Masmoudi, Nadia Haider, Nabila El Kadri, Youssef Idaghdour, Joel A. Malek, Deborah Thirkhill, Ghulam S. Markhand, Robert R. Krueger, Abdelouahhab Zaid and Michael D. Purugganan .Nature Communications 6, Article number: 8824. OPEN, doi: 10.1038/ncomms9824 .November.2015].
- **Khalifa International Date Palm Award, Eighth Session 2016 has extended the date of applications until 30 of November 2015.** General Secretariat of the Award announced interested candidates to apply to any of the award five categories, which are: Date Palm Research and studies, Date Palm best producer (individual and/or institutions), The best new Technology, The best development project, Influential Figure(s), (most important achievements) in the Date Palm Industry. The administrative office of the award will coordinate with the candidates to ensure the completion of all necessary paperwork. For more information, the General Secretariat of the Award welcomes all participants to apply and to visit the award website: [www.kidpa.ae](http://www.kidpa.ae). The application should be sent to the address: Khalifa international Date Palm Award, P.O.BOX 82872, AL Ain, UAE. Email: [kidpa@uaeu.ac.ae](mailto:kidpa@uaeu.ac.ae).

Prof. Abdelouahhab Zaid, Secretary General of Khalifa International Date Palm Award.

- **Iraqi Date Palm Network Awards 2015.** Dr.Hussam S.Khieralla and Dr.Thaira K. Al-Rawi have been granted the Iraqi date palms Network Awards 2015 for their distinguished researches in the finger printing technology of the date palms varieties.ASPP congratulates both of them for this achievements.

## WORKSHOPS & MEETINGS

**A Workshop on the Alternatives to Methyl Bromide for Controlling Postharvest Dates Insects in Iraq .May19, 2015.** On May 19, 2015, a workshop was convened at the Ministry of Agriculture in collaboration with the representative of Prime Minister Office/ Agricultural Section and representatives of Ministries of Environment, Science and Technology, Health, Trade, Plant Protection and Planning and Fellow up Directorates of the Ministry of Agriculture and lastly the Iraqi Manufacturing, Processing and Marketing Dates Company. The aim of this workshop was to provide an open forum to discuss the alternative to methyl bromide to control postharvest date's insects. Professor Mahdi Al-Kaisy/Deputy Minister of the Ministry of Agriculture welcomed all participants and furthermore explained the purpose of the workshop is to share best practices for finding alternative methods to preserve dates instead of methyl bromide. Prof. Al-Kaisy then ask the lecturers to give their lectures according to the timetable suggested for the workshop, these lectures were as follows: Alternative to methyl bromide in postharvest dates treatment/ Dr.Nazar Al-Ambaki (Ministry of Agriculture), Methyl bromide alternatives in postharvest dates treatment as proved by Vienna treaty and Montreal assignments/ Dr. Toma Al-Helo (Ministry of Environment), Using IPM agents (Parasitoids and Pheromones) to control postharvest dates insects in the fields and warehouses / Dr. Ayad Al-Taweel (Ministry of Science and Technology), Improvements methyl bromide alternatives to control postharvest dates insects / Dr. Wared Abdul-Alla (Iraqi Company for Manufacturing, Processing and Marketing Dates). After that Prof. Al-Kaisy addressed a general discussion between participants in the workshop and the lecturers, then the workshop finalized by the following recommendations:

- 1) Suggesting a national program participating in it all parties interested to find an alternative to methyl bromide specifically in their experts, experiences and laboratories to control postharvest dates insects and to reduce the percentage of dates infestation to range accepted nationally and internationally as the results achieved by the researchers of Science and Technology Ministry.
- 2) The workshop decided that all parties should continue their researches to find new alternative techniques and international communications to get advantages from recent techniques specifically using ionizing radiation emitted from electron accelerator (10 MeV/20 kW) as a final treatment after using IPM agents specifically Parasitoids, Pheromones traps, Dismate EM and Organic Insecticide Fytomax N (1% Neem oil).

### **10<sup>th</sup> Conference on Integrated Protection of Stored Products.**

International Organization for Biological Control (IOBC), along with Department of Agricultural, Environmental and Food Sciences at the University of Molise (Italy) and Plant protection Institute of the Croatian Center for Agriculture, Food and Rural Affairs organized the 10<sup>th</sup> conference on integrated protection of stored products, in Zagreb, Croatia from 28 June to 1 July 2015. The aim of the Conference is to inform stakeholders and interested parties on new research and development of integrated protection of stored products, the conference brings together experts, Scientists, industry and other interested in scientific articles from 32 countries of Africa, Asia, Australia, Europe, South and North America, including the Arab Countries participation by Iraq, Egypt and Algeria The Conference including 7 sessions: Physical, Chemical and Other techniques for stored product pest control, Methods of pest prevention during storage, transportation and handling of stored product, Prevention of microflora infection and development of mycotoxins, Biological control of stored products pests, Wood-Boring, urban and Museum pests, Quarantine and regulatory issues, Future trends on all aspects of storage pest control. Dr. Mohammed Zaidan Khalaf, Ministry of Science & Technology, participated in this conference with a topic on "microwave technique to control date moth *Ephestia cautella* as alternative method to Methyl Bromide in stored dates".



**The Fifth International Cereal Nematode Initiative (ICNI) Workshop, Ankara, Turkey, 12-16 Sept. 2015.** The Fifth International Cereal Nematode Initiative (ICNI) Workshop has been held in Ankara, Turkey, 12-16 Sept. 2015. During the opening ceremony, 70 representatives from 21 countries including; Algeria, Egypt, Jordan, Morocco, Saudi Arabia, Syria, Pakistan, Iran and many other countries were welcomed by Ali Osman Sari, Deputy Director General, Directorate of Agricultural Research and Policies, Turkish Ministry of Food, Agriculture and Livestock (MFAL), Birol Akbas, Plant Health Department Head, MFAL, and Alexey Morgounov, Head, International Winter Wheat Improvement Program and CIMMYT-Turkey CLO. The workshop proceedings book has been edited by Abdelfattah A. Dababat, Hafiz Muminjanov, and Richard Smiley, and was printed by FAO. The book covered such subjects as biology, development and management of cereal nematodes, as well as molecular techniques for nematode identification, gene expression and resistance. The conference was coordinated and organized by Abdelfattah Dababat, CIMMYT-Turkey, as a part of the ICARDA-CIMMYT Wheat Improvement Program (ICWIP), and funded by CIMMYT, MFAL, DuPont, Bisab, Dikmenfide, GRDC and Syngenta as the main donor.



**The 2nd International Conference for date palm (ICDP 2016) at Qassim University, Kingdom of Saudi Arabia, from 10-12 October 2016.** ICDP 2016 will bring together scientists from around the world to present and discuss the latest advances in their research as well as important issues relevant to date palm. ICDP 2016 will provide a congress, which show cases the best in date palm activity worldwide. The scientific program has been designed to bring together leading scientists who use innovative technologies, including specialists in red palm weevil, date palm production, mechanization of agricultural operations, economics and marketing of date, and diseases and pests of palm, among many other topics. The Conference will open with a plenary lectures delivered by a group of distinguished scientists globally.

ICDP 2016 Conference key dates:

- \* Registration opens 1st July 2015, Abstract submission: 1st July 2015.
- \* Abstract submission closes 1st May 2016. Full paper submission closes 15th May 2016.
- \* Author notification: 15th June 2016. Posters submission closes: 10th October 2016.

<http://www.cavm.qu.edu.sa/en/ICDP2016/Pages/Home1.aspx>

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## ❖ Publications

### NEW ISSUED BOOKS & JOURNALS

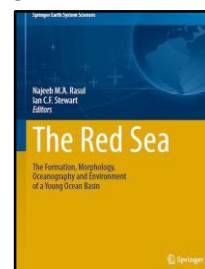
**Tunisian Journal of Plant Protection.** University scientists and all of plant health specialists in Tunisia and outside are rejoiced that *Tunisian Journal of Plant Protection* (TJPP) had obtained lately an Impact Factor (IF). Even though this IF is at the beginning low (0.8), it is still encouraging since TJPP is young at its 10<sup>th</sup> year and has a promising future. TJPP was firstly hosted in *Ecole Supérieure d'Agriculture du Kef* (University of Jendouba) then in the *Institution de la Recherche et de l'Enseignement Supérieur Agricoles* which oversees all Tunisian agronomic faculties. TJPP Editorial Board is composed by members belonging to the agronomic faculties concerned by the plant protection field, and its Evaluator Board is composed of international specialized experts in addition to Tunisian imminent competencies. TJPP which is a half yearly English speaking review treats all research activities specialized in plant protection. Since the publication of the first issue at mid-2006, TJPP published 19 issues that contained near to 140 papers in divers plant health fields (virus, bacteria, fungi, nematodes, mites, insects, weeds, pesticides and others...). Papers are not produce by only Tunisian researchers, but also by researchers from Arab countries as well as other African and Asian countries. For more details of all TJPP issue contents and free downloading papers, it needs to visit the following TJPP website <[www.iresa.tn/tjpp](http://www.iresa.tn/tjpp)>. Bouzid Nasraoui-The Editor-in-Chief of TJPP.





### **The Red Sea, the Formation, Morphology, Oceanography and Environment.**

Ahmed I. Rusdji, associate professor in Plant Protection Department, College of Food and Agricultural Sciences, King Saud University has contributed by a chapter entitled “Calcite and Aragonite Saturation States of the Red Sea and Biogeochemical Impacts of Excess Carbon Dioxide” in the scientific book “The Red Sea, The Formation, Morphology, Oceanography and Environment of a Young Ocean Basin”. The book has been edited by Nageeb M.A. Rasoul and Ian. C.F. Stewart, and has been published by Springer in 2015. The chapter discusses the saturation states of the Red Sea with respect to both calcite and aragonite and their possible biogeochemical impacts as a result of ocean carbonate chemistry changes. The saturation levels of the Red Sea surface waters are several-fold supersaturated with respect to calcite and aragonite; they range from 634 to 721 % and from 446 to 488 %, respectively. The saturation levels of the deep waters range from 256 to 341 % with respect to calcite and from 177 to 230 % with respect to aragonite. They generally increase from south to the north. The lowest values of seawater super saturation with respect to both calcite and aragonite were found at water depths >1,400 m. Changes in the seawater acid–base chemistry due to excess CO<sub>2</sub> emission and oceanic acidification affect the saturation states of calcium carbonate. Based on reported results of the excess CO<sub>2</sub> sink in the northern part of the Red Sea. The estimated degree of saturation with respect to calcite and aragonite was higher by  $1.9 \pm 0.4$  % at >200 m,  $4.9 \pm 0.7$  % at 200–600 m, and  $2.5 \pm 0.1$  % at >600 m in preindustrial times than in 1982. A projected drop in pH by a 0.1 unit decreases the saturation level by a factor of 1.2, whereas a drop by 0.4 pH unit decreases the saturation level by a factor of 2.1. These changes in saturation levels will have major impacts on the calcifying pelagic and benthic organisms as well as the distribution and depth of coral reefs. Low magnesian calcite and pure calcite are expected to be the dominant carbonate minerals at these low super saturation levels.



## **SELECTED RESEARCH PAPERS**

- **Evaluation of the Sex Pheromone Efficiency of the Lesser Date Moth, *Batrachedra amydraula* Meyrick (Lepidoptera: Batrachedridae), in Baghdad, Iraq.** Redha Segub Al-Jorany, Ibrahim Jadou Al-Jboory and Nayem Hassan. *Journal of Life Sciences*.9.242-247, 2015.
- **Mycotoxin occurrence in maize produced in Northern Italy over the years 2009–2011: focus on the role of crop related factors.** Marco CAMARDOLEGGIERI, Terenzio BERTUZZI, Amedeo PIETRI and Paola BATTILANI. *Phytopathologia Mediterranea* 54 (2): 212–221, 2015.
- **Improved method for assessing incidence of Citrus tristeza virus in large scale monitoring.** Anna Maria D'ONGHIA, Franco SANTORO, Yaseen ALNAASAN, Stefania GUALANO, Franco VALENTINI, Khaled DJELOUAH and Benedetto FIGORITO. *Phytopathologia Mediterranea*. 54 (1): 55–63, 2015.
- **Effectiveness of composts and *Trichoderma* strains for control of Fusarium wilt of tomato** .Yousra TAGHDI, Rosa HERMOSA, Sara DOMÍNGUEZ2, María Belén RUBIO, Haiat ESSALMANI, Carlos NICOLÁS and Enrique MONTE. *Phytopathologia Mediterranea*. 54(2): 232–240, 2015.
- **Serological and molecular characterization of Syrian Tomato spotted wilt virus isolates.**Faiz ISMAEIL, Amin Amer HAJ KASSEM, Salah AL-CHAABI, Ahmed ABDULKADER and Mouhamed ALKHALAF. *Phytopathologia Mediterranea*.54 (1): 28–34, 2015.
- **Identification of three potential insect vectors of *Xylella fastidiosa* in southern Italy.** Toufic Elbeaino, Thaer Yaseen, Franco Valentini, Issam Eddine BEN Moussa, Valerio Mazzoni and Anna Maria D'onghia. *Phytopathologia Mediterranea*.53 (1): 328–332, 2014.
- **Potato seed dressing with *Pseudomonas aeruginosa* strain RZ9 enhances yield and reduces black scurf.** Moncef Mrabet, Salem El-Kahoul, Belhassen Tarhouni and Naceur Djebali (Tunisia), *Phytopathologia Mediterranea*, 54:265–274. 2015.
- **Sublethal effects of azadirachtin-A (NeemAzal-T/S) on *Tetranychus urticae* (Acari: Tetranychidae).** Dejan Marcic and Irena medo. *Systematic & Applied Acarology*. 20(1): 25-38.2015.

- **A New species of *Tenuipalpus* Donnadieu (Acari: Tenuipalpidae) from Brazil, with ontogeny of chaetotaxy.** Elizeu B. De Castro, Felipe A.M. Ramos, Reinaldo J.F. Feres & Ronald Ochoa. Systematic & Applied Acarology. 20(3): 339-356.2015.
- **On-site detection of *Xylella fastidiosa* in host plants and in “spy insects” using the real-time loop-mediated isothermal amplification method.** Thaer Yaseen, Sandro Drago, Franco Valentini, Toufic Elbeaino, Giuseppe Stampone, Michele Digiario And Anna Maria D’onghia. Phytopathologia Mediterranea .54(1): 17–25.2015.
- **Deep sequencing of dsRNAs recovered from mosaic-diseased pigeonpea reveals the presence of a novel emaravirus: pigeonpea sterility mosaic virus 2.** Toufic Elbeaino, Michele Digiario, Mangala Uppala & Harikishan Sudini. Australia. Vol.160(6). Arch Virol DOI 10.1007/s00705-015-2479-y. 2015.
- **The sequencing of the complete genome of a *Tomato black ring virus* (TBRV) and of the RNA2 of three *Grapevine chrome mosaic virus* (GCMV) isolates from grapevine reveals the possible recombinant origin of GCMV.** M. Digiario, E. Yahyaoui, G. P. Martelli & T. Elbeaino. Virus Genes .50:165-171, DOI 10.1007/s11262-014-1094-4.2015.

## PAPERS PUBLISHED IN THE ARAB JOURNAL OF PLANT PROTECTION (AJPP) VOLUME 33, ISSUE 2, AUGUST 2015

[http://www.asplantprotection.org/ASPP\\_Journal-33-2\\_2015.htm](http://www.asplantprotection.org/ASPP_Journal-33-2_2015.htm)

### REVIEW PAPER

- **The Journal and publications of the Arab Society for Plant Protection are a leading initiative in scientific writing in the Arabic language.** B. Bayaa, K.M. Makkouk and S.G. Kumari (LEBANON & SYRIA) (Pages 97-106).

### ECOLOGY, ETIOLOGY

- **Effect of low temperatures on the activity of the entomopathogenic nematode *Heterorhabdites bacteriophora* Poinar *in Vitro*.** M.H. Al-Zainab and R.U. Ehlers (SYRIA & GERMANY) (Pages 107-115).
- **The causal agents of wheat crown and root rot in Syria, their pathogenicity, and the reaction of some wheat cultivars and wild relatives to the disease.** S. Al-Chaabi, S. Masri, A. Nahlawi and L. Matrod (SYRIA) (Pages 116-129).

### SURVEY

- **Detection and distribution of olive drupe rot disease caused by *Sphaeropsis dalmatica* (Thum.) Gigante in Aleppo province, Syria.** M. Matar and A. Arab (SYRIA) (Pages 130-140).

### HOST RESISTANCE

- **Characterization of seedling and adult-plant resistance to wheat yellow rust disease in some Syrian bread wheat cultivars.** H. Mohandes, W. Al-Seid and K. Nazari (SYRIA & TURKEY) (Pages 141-149).
- **Susceptibility of some chickpea accessions to infestation with leaf miner *Liriomyza cicerina* Rondani and its impact on yield.** L. Ali, M. El-Bouhssini, A.N. Trissi and N. Kaake (SYRIA & MOROCCO) (Pages 150-156).
- **Relative susceptibility of some safflower cultivars to infestation with fruit fly in Damascus, Syria.** A.N. Bashir, L. Aslan and F. Abdel Razzak (SYRIA) (Pages 157-163).
- **Effect of some herbicides in controlling broomrapes (*Orobanche* spp.) and major weeds in food legume (chickpea, lentil and faba bean) crops.** A. Shomar, N. Al-Hussein, K. Al-Shamaa and B. Bayaa (SYRIA) (Pages 164-176).

### BIOLOGICAL CONTROL

- **Effect of biocontrol agents on *Fusarium* wilt caused by *Fusarium oxysporum* f. sp. *ciceri***

- (padwick) on chickpea under laboratory and field conditions. O. Hammoudi and A. Sbieh (SYRIA) (Pages 177-182).
- **Efficiency of arbuscular mycorrhiza in the control of tomato damping-off caused by *Pythium ultimum* along the Syrian coast.** M.I. Khriba, I. Ghazal, M.F. El-Azmeh and W. Chouman (SYRIA) (Pages 183-191).
  - **Effect of *Trichoderma harzianum* on *Fusarium oxysporum* f. sp. *ciceris* causing chickpea wilt.** L.A. Aloush, S.K. El-Moghrabi and B.A. Barhoum (SYRIA) (Pages 192-200).
  - **Evaluation of the efficiency of some antagonistic fungi to control root-knot nematode *Meloidogyne incognita* on tomato.** M. Abdoulkader and R. Mansoure (SYRIA) (Pages 201-207).
  - **Laboratory evaluation of some local entomopathogenic fungi isolates against cotton whitefly, *Bemisia tabaci* (Genn.).** A. Haj Hasan, M. Ahmad and S. El-Moghrabi (SYRIA) (Pages 208-215).
  - **Efficiency of a commercial formulation of the fungus *Metarhizium anisopliae* on mortality of termite *Microcerotermes diversus* (Silv.) workers under laboratory conditions.** R.F. Al-Jassany and R.A.R. Al-Zobaidi (IRAQ) (Pages 216-222).
  - **Efficacy of some bio-agents in protecting olive trees against infestation with the termite *Microcerotermes diversus* (Silv.).** R.F. Al-Jassany and M.A. Al-Salehi (IRAQ). (Pages 223-229).
  - **Potential of *Phytomyza orobanchia* Kalt. and *Smicronyx cyaneus* Gyll. As biocontrol agents of the parasitic weed *Orobanche crenata* Forsk. Along the coastal region of Syria.** H. Habak, M. Ahmad and B. El-Rahban (SYRIA) (Pages 230-237).

#### NEW RECORD

- **First, record of the bug *Dionconotus neglectus neglectus* on onion *Allium cepa* at Tartous, Syria.** Y.A. Ali, A. Ahmad and J. Amar (SYRIA) (Pages 238-240).

#### PAPERS, WHICH WILL BE PUBLISHED IN THE ARAB JOURNAL OF PLANT PROTECTION (AJPP), VOLUME 33, ISSUE 3, DECEMBER 2015

- **Prevalent soil mycoflora at protected tomato rhizosphere and their *in vitro*, antagonism against *Pyrenochaeta lycopersici* along the Syrian coast.** K. El-Rahyeh, S. Kodsiyeh, M. Abou Shaar and W. El-Ibrahim.
- **The effect of caging honeybee Queens at the middle of the season on the development of *Varroa destructor* and honeybees (*Apis mellifera*) populations.** N.Y. Daher-Hjeij and A.K. El-Boraki.
- **Effect of using pheromone traps and pesticides for the control of tomato leafminer *Tuta absoluta* (Meyrick) at Zummar in Iraq.** H.M. Mohammed.
- **Dynamics and diversity of carabid beetles (Coleoptera: Carabidae) in some fruit orchards in Syria.** A.Y. Ali, I. Rabotsy, A. Ahmad, J. Ammar and R. Darwish.
- **Genetic variation in *Tilletia tritici* and *T. laevis* isolates, the causal agents of wheat common bunt disease in Iraq.** E.M. Al-Maarroof, S.A. Shamsallah and M.S. Hasn.
- **Evaluation of susceptibility of some barley local varieties and experimental lines to infestation with barley stem gall midge *Mayetiola hordei* Keiffer.** A. Arab, S. Khoja, M. Abdel Hay, K. Hukan, Y. Azar, B. Koro and R. Kudsiyeh.
- **First record of long horned beetle *Xylotrechus stebbingi* in Syria.** A.Y. Ali.
- **Role of bion and allopurinol in inducing systemic acquired resistance against *Potato virus Y* in potato plants.** A.Y. Ahmad, T. A. Moustafa and F.M. Abo El-Abbas.
- **Biological control of chickpea root rot caused by *Fusarium solani* using Biocont-T in the field.** H.H. Ali, K.A.M. Fatah and Q.A. Marzani
- **The biology of the olive leaf midge *Dasineura oleae* F. Löew in the olive trees along the Syrian coast.** A.M. Ramadan, R. Abu Tara and Z.M. Baidaq.
- **First documented record on identification and population dynamics of the false spider mite *Brevipalpus californicus* (Banks), in lemon orchards in Lattakia governorate of Syria.** S. Karheli, Z. Barbar and L.H. Aslan.

- **Survey and biological study of Barley stem gall midge *Mayetiola hordei* Keiffer in Syria.** M. Tamer, A.N. Trissi, M. El-Bouhssini and N. Kaake
- **Pathogenicity of *Bacillus thuringiensis* against three important date palm insect pests.** M. Latifian and G.R. Kajbafvala.
- **Determination of alpha cypermethrin residues in tomato fruits.** B. Al-Rahban, F. Bakour and A. Mehemed

## EVENTS OF INTEREST

2016 - 2018

**\*7- 9 April 2016**

**9th International Symposium on Septoria Diseases of Cereals, Paris, France.**

<http://ccdm.curtin.edu.au/symposium.cfm>

**\*17-18 April 2016**

**The 7th conference of agricultural science in faculty of agriculture Assiut University.** [http://www.aun.edu.eg/faculty\\_agriculture/arabic/conf/conf.htm](http://www.aun.edu.eg/faculty_agriculture/arabic/conf/conf.htm)

**\*13-17 June 2016**

**11<sup>th</sup> International Symposium on Adjuvants for Agrochemicals (ISAA 2016).USA.Monterey Organizer: International Society for Agrochemical Adjuvants (ISAA Society).**[www.isaa2016.org](http://www.isaa2016.org)

**\*25-30 September 2016**

**The XXV International Congress of Entomology, Orlando, Florida, USA**

<http://ice2016orlando.org/>, <http://www.spongospora.ethz.ch/workshops.html#CH>

**\*10-12 October 2016.**

**The 2nd International Conference for date palm (ICDP 2016) at College of Agriculture and Veterinary Medicine, Qassim University, Kingdom of Saudi Arabia, from 10-12 October 2016**

<http://www.cavm.qu.edu.sa/en/ICDP2016/Pages/Home1.aspx>

**\* 14-18 November 2016**

**9<sup>th</sup> Australasian Soil-borne Diseases Symposium Heritage Hanmer Springs, Canterbury, New Zealand.** [http://www.appsnet.org/Interest\\_Groups/ASDS/asds.aspx](http://www.appsnet.org/Interest_Groups/ASDS/asds.aspx)

**\*11 -15, July 2016.**

**8th Symposium of the European Association of Acarologists Universidad Politécica De Valencia**

<http://euraac.webs.upv.es/SympValencia/abstract.php>

**\*23 – 30 July 2016.**

**4th International Scientific Conference of Genetic and Environment Cairo, Egypt.** [agerciraq@gmail.com](mailto:agerciraq@gmail.com)

**\*5-9 November 2017.**

**The 12<sup>th</sup> Arab Congress of Plant Protection,Egypt**

**\*29 July – 03 August 2018**

**1th International Congress of Plant Pathology (ICPP2018), Boston, Massachusetts, USA.**

<http://www.icpp2018.or>



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**News and announcements from all, on any aspect of plant protection in the Arab world, are invited for the Newsletter. Contributions from the Executive Committee of the Arab Society for Plant Protection and from the four Subject Matter Committees, as well as from national societies in the Arab region dealing with any aspect of plant protection, are kindly requested and highly appreciated.**