



ARAB AND NEAR EAST PLANT PROTECTION NEWSLETTER



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EDITORIAL

Precision Disease Diagnostics: the competition between animals and humans

Over the past three decades, significant progress was made to improve the sensitivity and accuracy of detection of different plant pathogens using either serological or molecular techniques. It is now possible to detect the presence of plant pathogens (fungi, bacteria, mycoplasma, viruses) in nanogram quantities, and before the appearance of disease symptoms. However, these tests require expertise, special equipment and expensive reagents.

About 75% of citrus groves in Florida, USA, are threatened by a disease known as citrus greening (also known as the huanglongbing disease, which means literally the yellow dragon disease) caused by a bacteria transmitted by Asian citrus psyllids. These bacteria can easily be detected by molecular tests (e.g. PCR), but the test is expensive and require costly facilities.

The USA Department of Agriculture has recently trained ten dogs of the German shepherd-Belgian Malinois hybrid to detect the presence of the bacteria that has been killing citrus trees for a decade in Florida, the biggest citrus producer state in the USA. Trained dogs with 50 times more scent receptors in their noses than humans, can easily sense volatile chemicals that citrus trees emit when infected. Trials showed that they are accurate in 99.7 % of the cases – better than the lab tests- and identify diseased trees before symptoms appear. Consequently, such trained dogs are extremely valuable tool in conducting surveys for the occurrence and distribution of citrus greening much faster and more economical than any known lab test. These animals can be an extremely useful tool for plant health inspection services worldwide.

In the Middle East and the Mediterranean region, citrus greening disease has been only detected so far in southern Saudi Arabia. A question poses itself: should plant health/quarantine services in the region consider employing such approach in monitoring this disease in an effort to prevent/slow down its spread to the Mediterranean citrus growing countries, where citrus is an economically important agricultural commodity? Individuals interested in more details on this topic are advised to read a recent article by Melissa Mittelman entitled “Dogs hot on the scent of citrus killers” published in BDlive on March 22, 2016.

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INVASIVE AND NEW PESTS

IRAQ

New Record of Peach fruit fly *Bactrocera zonata*, (Saunders) (Tephritidae:Diptera) in Iraq. Haider El-Haidari (1972) first collected peach fruit fly in an imported consignment from Bahrain, however the consignment was strictly treated by agriculture quarantine officers. Peach fruit fly *Bactrocera zonata* appears again in spring 2016 in Wasit province, and has been officially recorded by Dr. Naema I. Aydan when few other than *Ceratitis capitata* flies were captured in Medfly traps. Extensive survey has been conducted in different locations of Wasit and other Iraqi provinces. First capturing was by the white fly pheromone trap as (1 insect/3 days/trap). Since that time coordinating efforts have been established with the Green Gold private agricultural company to supply the specific pheromone for *B. zonata*. Table 1 and 2 shows the trapped peach fruit flies in different dates and sites when using Delta and Tephri pheromone traps respectively. [Amal S. Abdulrazak,, Hameed A. Hadwan, Samir A. Hassan, Naema I. Aydan, Ali K. Mohammed, Khalid M. Haider, Saad A. Hussein ,Plant Protection Directorate, Ministry of Agriculture,Iraq,2016]

Table 1						
Sites	Dates					
	27/9	3/10	13/10	20/10	27/10	3/11
1	470	259	453	507	254	220
2	480	257	661	710	250	277
3	319	451	321	197	215	230
4	241	229	255	191	122	160

Table 2						
Sites	Dates					
	6/10	13/10	13/10	20/10	27/10	3/11
1	316	335	296	296	320	381
2	152	410	275	275	370	326
3	159	407	312	312	485	476
4	240	207	206	206	250	267

Table 3: Distribution of <i>B. zonata</i> in different Iraqi provinces during Sept., October and November		
Province	Dates	The trapped individuals
Baghdad	20/9	1512
Wasit	22/10	1673
Almuthana	24/10	581
Najaf	26/10	80
Karbela	28/10	170
Salahaldeen	11/10	14

Isolation and Diagnosis of a New Isolate of *Potato mop-top virus* and using it in Evaluation of the Gene silencing method to resist it. This study was conducted to determine an active isolation method for obtaining a new isolate of *Potato mop-top virus* (PMTV) from soil and applying biological (Bioassay), immunological (TAS-ELSIA) and molecular methods (RT-PCR + qRT-PCR + Nucleotide Sequencing) for diagnosing it. One of the research objectives was to utilize the new isolate in evaluating the gene silencing method in PMTV resistance in transgenic *N. benthamiana* plants. The results showed that the liquid method was the most effective approach in obtaining PMTV viral infection in all tested plants. Additionally, it was confirmed that the isolate belong to PMTV and it had high pathogenicity. The results also displayed no significant differences between the transgenic and non-transgenic *N. benthamiana* plants in terms of resistance to PMTV in roots or leaves of tested plants. These results suggest a weak gene silencing activity that leads to PMTV resistance. This is possibly due to impact of the PMTV suppressor that

might cause a reduction or prevention of gene silencing efficacy to resist PMTV infection. [Adnan A. Lahuf (Iraq), Plant protection Department/Agriculture College/University of Karbala, 2016]

Observation of Two Spotted Spider Mite *Tetranychus urticae* on lettuce. Because of the intensive and irrational use of insecticides and acaricides on different crop pests, the two-spotted spider mite *Tetranychus urticae* showed a high resistance to pesticides. TSSM widen its plant hosts to attack lettuce in greenhouses causing economic damage in the region 30 Km south of Baghdad. This is the first observation of TSSM attacking a new host in Iraq. Identification of the mite species was confirmed by Dr. Ibrahim Al-Jboory.[Mohammed Zaidan Khalaf, (Iraq),Ministry of Science and Technology, 2016].



First Record of *Closterocerus chamaeleon* (Hymenoptera: Eulophidae), Parasitoid of the Eucalyptus Gall wasp *Ophelimus maskelli* (Ashmead) in Central Iraq. The first observation of the Eucalyptus Gall Wasps *Ophelimus maskelli* (Ashmead) was made during the months February, September, October and November 2016, on different nurseries in Husseinia area, province of Karbala, Iraq. The parasitoid *Closterocerus chamaeleon* was collected and identified by using the taxonomic key of the order Hymenoptera and compared with the published characteristics of the species in different parts of the world. It was characterized by the green head and thorax, a small size insect up to 0.6 -0.9 mm and have two setae on the forewing submarginal vein. [Taha M. Mohammed AL-Sweedi , and Adnan A. Lahuf (Iraq),2016. [unpublished](#)].

SYRIA

First Record of the Cochineal Scale Insect, *Dactylopius coccus* (Costa) (Hemiptera: Coccoidea: Dactylopiidae) from Syria 2016. The presence of the cochineal scale insect, *Dactylopius coccus* (Costa) (Hemiptera: Coccoidea: Dactylopiidae) is reported for the first time from Syria. It was collected off the Indian-fig prickly pear, *Opuntia ficus-indica* (L.) Miller (Cactaceae) at several localities in the Governorate of Damascus Countryside, during a survey conducted in July 2016. Infestation rate reached approximately 100%. *D. coccus* is the most important species of this family due to its being used for the extraction of carmine acid, a natural red dye presently used in food, pharmaceutical and cosmetic industries. *D. coccus* usually lives in colonies on the surface of the cactus plants. Adult females resemble small puffy sacs; they are covered with a coat of white, woolly wax. The body fluids typically dark red due to a high content of carminic acid, which is the source of red cochineal dye. The wax coat protects the insects from heat, cold and predation by ladybird beetle and the carminic acid seems to deter parasites. [Abdulnabi Basheer, louai Asslan, Hicham Alrouz and Alaa Saleh and Nadia Al-Khateeb. Biological control studies and Research Center, Faculty of Agriculture, Damascus University, 2016].

First Record of *Pyemotes tritici* (Acari, Prostigmata, Pyemotidae) as Ectoparasite Mite of Several Families of Coleoptera and Lepidoptera from Syria 2016. The presence of the straw itch mite, *Pyemotes tritici* (Lagréze-Fossat and Montagné) (Acari, Prostigmata, Pyemotidae) is reported for the first time from Syria. An insect parasitic mite was found on rearing mass in laboratories and stored products, attacking larval stages of *Plodia interpunctella* (Hübner), and adults *Callosobruchus maculatus* L. The female pierce the host integument with their chelicerae to feed on its body fluids. Injection of a toxin during feeding causes rapid paralysis of the host. *P. tritici* is well characterized by: (i) its physogastric process and (ii) suppression of immature stages. Physogastry is the extensive enlargement of a female's body during feeding period. During this phase, development of offspring begins. Development takes place inside the enlarged opisthosomal sac of these now gravid females with eggs proceeding directly to adults. The second contributes to the shortening of its life cycle, because this mite does not pass through the nymphal stages., Females of *P. tritici* mate immediately upon emergence, and thus disperse,



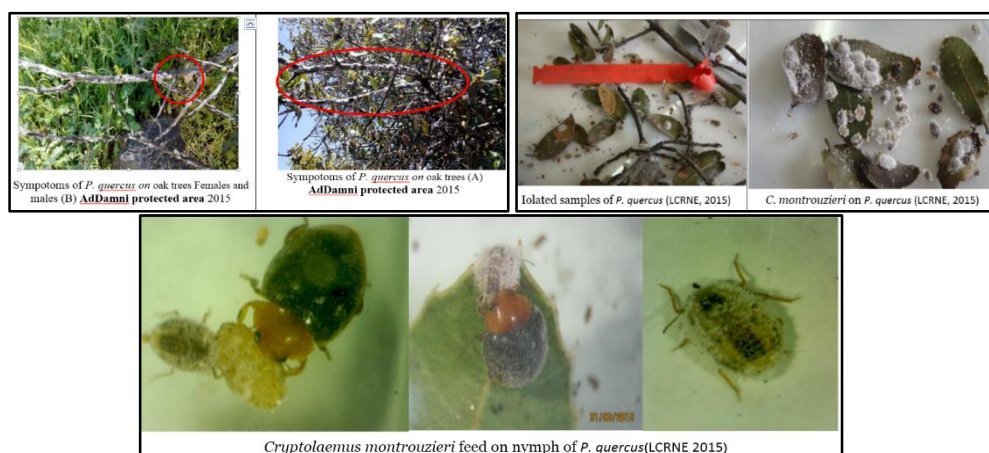
almost always, as fertilized adults. Then they attack other insects, swell and repeat their life cycle. [Abdulnabi Basheer and Alaa Saleh, Biological control studies and Research Center, Faculty of Agriculture, Damascus University, Under Publishing 2016.]

Scale Insect Species (Hemiptera: Coccoidea) in Syria. Scale insects in Syria were surveyed between 2009 and 2015. This study showed that Diaspididae and Coccidae were the most common families, comprising 5 and 8 species, respectively. The remaining families found comprised 1 species each. New records of Coccoidea fauna from Syria were *Parlatoria blanchardi*, *Phoenicococcus marlatti*, *Coccus hesperidum*, *Coccus pseudomagnoliarum* and *Chionaspis etrusca*. [A. M. Basheer, L. Asslan, A. Saleh, N. Diab and E. Mohamed (Syria), Bulletin OEPP/EPPO Bulletin (2016) 0 (0), 1–3, 2016].

First Record of a New Parasitoid on Codling Moth, *Cydia pomonella* L. belongs to Tachinidae Family in Syria. This study was conducted over a period 2011-2013 in Bushraghi (Lattakia) in western Syria on two plant hosts (apple and walnut). A number of parasitoids emerged in the laboratory from the field-collected larvae, including tachinids that were kindly identified by Hans-Peter Tschorsnig of the Staatliches Museum für Naturkunde, Stuttgart, Germany. A new tachinid species (Diptera: Tachinidae) collected from apple and walnut orchards parasite on *Cydia pomonella* in Lattakia Governorate, Syria. The new species was identified as *Neoplectops pomonellae*. The parasitoid has been reported for the first time in Syria on larvae of Codling moth in two plant hosts (apple and walnut). [Shadi Ibrahim Alhaj; Abdulnabi Mohamed Basheer; Louai Hafez Aslan (Syria), Accepted for publication in the Arab Journal for Arid Environments, 2016].

First Record of New Parasitoid on Codling moth, *Cydia pomonella* L. Belong to Ichneumonidae Family (Hymenoptera) in Syria. This study was conducted over a period 2011-2013 in Bushraghi and Eramo in Lattakia Governorate in apples orchards. Samples of infested apple fruits were collected to determine the parasitoids of the pest. The parasitoid *Mastrus ridibundus* Gravehorst (Hymenoptera: Ichneumonidae) was recorded as an internal parasitoid on fully-grown larvae at cocoon stage. The parasitoid was classified according to specific references, and it was recorded for the first time in Syria. [Shadi Ibrahim Alhaj ; Abedulnabi Basheer ; Louai Aslan (Syria), Accepted for publication in The Arab Journal for Arid Environments, 2016].

First Record of *Pseudococcus Quercus* Ehrhron, 1900 (Pseudococcidae: Hemiptera) in Syria. The *Pseudococcus quercus* Ehrhron, 1900 (Pseudococcidae: Hemiptera) was recorded for the first time from the **AdDamni protected area** (it is located to the east of Qanwat in Al-Suwayda, Syria), its area is 6531 dunums and 1200 meters above sea level. It includes forest trees and many aromatic plants. *P. quercus* was detected on the perennial oak trees (more than 300 years old) in early spring of 2015. *P. quercus* caused damage on the leaves and branches, 10.000 predators (Adults and larval stage) of *Cryptolaemus montrouzieri* (Mulsant) were distributed when reared on the citrus mealy bug *Planococcus citri* Risso at the Lattakia center for rearing Natural enemies to control *P. quercus*. Six random infected trees were selected by using red markers in order to monitor the effect of *C. montrouzieri* on *P. quercus*. Samples were collected from the infested trees (leaves and branches) and placed in refrigerated plastic boxes then transferred to predator's lab in Lattakia Center for Rearing Natural Enemies. Females were isolated and identification was carried out by using mealy bug keys. Ecological and biological study of *P. quercus* and its Natural enemies is still being carried out in the center. [Nadia Al-Khateeb, Louai Asslan and Fiher Al-Moushref, Lattakia Center for Rearing Natural Enemies Directorate of Agriculture, Ministry of Agriculture and Faculty of Agriculture, Damascus University, Syria, 2016].



SAUDI ARABIA

***Parageron raydahensis*, New Species and the First Record of Subfamily Usiinae (Bombyliidae: Diptera) from Saudi Arabia.** A new species, *Parageron raydahensis* sp. nov. represents the first record of the subfamily Usiinae (Bombyliidae, Diptera) from the Kingdom of Saudi Arabia (KSA) and is the first record of the genus from the Arabian Peninsula. The species was collected from Garf Raydah Protected Area, Abha, Asir Province, southwestern part of the KSA using a Malaise trap set in a site rich in *Juniperus procera*, *Acacia etbaica*, *Olea* spp., other typical Afrotropical trees, and introduced cactus species. This second known record of the genus *Parageron* supports the concept that several southwestern KSA provinces including Asir Province are part of the Afrotropical Region.[Magdi Shaaban Ali El-Hawagry, and Hathal Mohammed Al Dhafer (Saudi Arabia), Pakistan J. Zool., vol. 48(5):1307-1310, 2016.]

RESEARCH HIGHLIGHTS

ALGERIA

Pathogenicity and Trichothecenes Production of *Fusarium culmorum* Strains Causing Head Blight on Wheat and Evaluation of Resistance of the Varieties Cultivated in Algeria. *Fusarium* head blight (FHB) is a major disease of wheat that has been studied worldwide but never in Algeria where high quantities of both durum wheat and common soft wheat are grown and traditionally consumed as semolina and bread. *Fusarium* root rot has also been observed in this country. Here we show that *Fusarium culmorum* seems to be the major pathogen associated with these diseases in Algeria. The type of mycotoxins produced by four *F. culmorum* isolates and their capacity to confer the disease on spike and accumulate type B trichothecenes in the grain was evaluated. Two strains produced deoxynivalenol, 3acetyldeoxynivalenol and zearalenone in vitro. The two other strains produced nivalenol and fusarenone X. The four strains were used for artificial spray inoculations on wheat spikes to determine their potential ingenerating FHB symptoms and accumulating mycotoxins in local field conditions. A panel constituted of four durum wheat and four soft wheat varieties generally cultivated in Algeria and of two newly created durum wheat lines were evaluated. The results show a correlation between the level of invasion of the grain and the quantity of accumulated toxins with a large diversity depending on the cultivars. Interestingly, two local durum wheat varieties and the two new durum lines showed a promising level of resistance to FHB with significantly lower trichothecene accumulation. The content in phenolic compounds of the different varieties was assessed and evaluated as possible factor of resistance to trichothecene accumulation. This is the first report evaluating the wheat varieties cultivated in Algeria for their susceptibility to *Fusarium* Head Blight caused by local strains of *F. culmorum* in semiarid bioclimatic condition.[Sihem Touati-Hattab , Christian Barreau , Marie-Noelle Verdal-Bonnin , Sylvain Chereau , Florence Richard-Forget , S. Hadjout , Leila Mekliche and Zouaoui Bouznad (Algeria), Eur. J. Plant Pathol, DOI 10.1007/s10658-016-0869-y, 2016].

Biocontrol of Wheat *Fusarium* Crown and Root Rot by *Trichoderma* spp. and Evaluation of their Cell Wall Degrading Enzymes Activities. Fourteen strains of *Trichoderma* spp. were isolated from Algerian desert soils and assessed for their antagonistic activity against *Fusarium* crown and root rot of wheat. Biocontrol efficiency of *Trichoderma* spp. was studied by *in vitro* and *in vivo* based bioassay against three pathogenic species: *F. culmorum*, *F. graminearum* and *F. verticillioides*. *In vitro* based bioassay (dual culture) results obtained with all *Trichoderma* spp. isolates showed significant decrease in colony diameter of *Fusarium* species compared to the control. The highest percentages of reduction in colony diameter were obtained with *T. harzianum* Thr.4 causing a growth reduction of 70.68%, 67.05 and 70.57% against *F. culmorum*, *F. graminearum* and *F. verticillioides*, respectively. All *Trichoderma* spp. isolates were able to overgrow and sporulate above *F. culmorum* colonies but no overgrowth was observed with *F. graminearum* and *F. verticillioides*. The seed treatment by *Trichoderma* spp. isolates before sowing in a soil already infested by the pathogens led to a significant decrease of disease severity compared to the untreated control. The highest disease index decrease (>70%) was obtained with two isolates of *T. harzianum* (Thr.4 and Thr.10) and *T. viride* Tv.6 against the three fungal pathogens. Lytic enzymes production by *Trichoderma* spp. isolates was tested in liquid cultures containing fungal cell walls of each pathogen as sole carbon source. Higher levels of protease and chitinase activities were induced by hyphal cell walls of *F. graminearum* than cell walls of *F. verticillioides* and *F. culmorum*. *T. harzianum* Thr.4 exhibited the highest enzyme activities with

hyphal cell walls of *F. graminearum* and *F. culmorum*. However, in the medium amended with cell wall of *F. verticillioides*, maximal lytic activities were recorded for *T. viride* Tv.6 [W. Dendouga, H. Bouregghda and M. Belhamra (Algeria), Acta Phytopathologica et Entomologica Hungarica 51 (1): 1–12, (2016). DOI: [10.1556/038.51.2016.1.1.0238-1249](https://doi.org/10.1556/038.51.2016.1.1.0238-1249)/ \$ 20.00 © 2016 Akadémiai Kiadó, Budapest.

EGYPT

Predatory Mites of the Family Parasitidae Oudemans (Acari: Mesostigmata) from Egypt: Redescriptions, New Record and a Key to Species. The present work aimed to study the taxonomy of parasitid mites (Acari: Mesostigmata) from Egypt. The identification of newly collected specimens as well as the examination of some previously described species is presented. *Cornigamasus ocliferius* Skorupski & Witalinski, 1997, extracted from cow dung, is recorded for the first time from this country. Adults and deutonymphs of *Parasitus consanguineus* Oudemans & Voigts, 1904 and *P. fimetorum* (Berlese, 1904), worldwide cosmopolitan species, were found in animal dung and soil. Three genera with seven species are known from Egypt to date. Redescriptions of adults and deutonymphs are provided for the known species. Also, a taxonomic key to the Egyptian parasitids is presented. [Mohamed W. Negm, (Egypt), African Entomology, 24(2): 450-475. 2016].

An Updated and Illustrated Review to the Identification of the Genera *Aceria* Keifer and *Eriophyes* von Siebold (Acari : Eriophyidae) in Egypt. This paper provides a synopsis of two genera from eriophyoid mites in Egypt, with an identification key to two genera (*Aceria* and *Eriophyes*) and 33 species; 30 of them belong to genus *Aceria* and 3 from genus *Eriophyes*. Ten synonyms of mite species and host plant were recorded. A new species, *Aceria rotundus* sp. nov. found on *Cyperus rotundus* L. (*Cyperaceae* Juss.) from Sohag province, Egypt was described and illustrate.[Halawa, A. M. Ebrahim, A. A. Abdallah A. A. M., Azza, A. Mohamad, Hosam, M.K.H. El-Gepaly and El-Sebaay, M. M. (Egypt), Egypt. Acad. J. Biolog. Sci. (A. Entomology), 9(2): 33-59, 2016].

Categorization of Certain Imported Sugar Beet Varieties as Affected by Population Density of Root Knot Nematode, *Meloidogyne incognita* in Egypt. Under open field conditions, ten sugar beet (*Beta vulgaris* L.) varieties were evaluated for their susceptibility/resistance against root knot nematode, *Meloidogyne incognita* according to nematode damage index (DI) which was calculated as an average of gall index, gall size and gall area. The percentage host vigor was calculated as an average of percentages root (tubers) and leaf weight potentials and the tested technological characteristics (%sucrose, % purity and %total soluble solids) which used as a new scale to assess host reaction. The degree of susceptibility/resistance according to DI was combined with the percentage host vigor of each variety to give a better evaluation and clear relationship between nematode infestation and sugar beet variety yield quality and quantity. On this basis, sugar beet varieties were categorized into nine varieties as tolerant (BTS 237, BTS301, BTS302, BTS303, Gazelle, Meridi, Panther, SN626 and Tenor) and one as highly resistant (SN627) against root knot nematode. The highly resistant or tolerant sugar beet varieties determined in this study could be recommended for breeding programme and could be introduced in integrated pest management for controlling root knot nematode. [Mahmoud M.A. Youssef, Wafaa M.A. El-Nagdi and Mahfouz M.M. Abd Elgawad (Egypt), International Journal of ChemTech Research, 9(7):32-36, 2016].

New Trends for Controlling Root Rot of Tomato, caused by *Fusarium solani*, Under Greenhouse Conditions. A study to evaluate some biocontrol agents (*Epicoccum nigrum* and *Bacillus pumilus*), titanium dioxide nanoparticles, spearmint and erica oils, beside the recommended fungicide carbendazim, against *Fursaruim solani*, the causative fungus of root rot in tomato was carried out. GC-MS analysis was undertaken to identify the bioactive chemical components of plant origin oils (spearmint and eruca). In addition, the effects of these materials on some biochemical's and crop characters of tomato were investigated. Carbendazim was the most effective treatment, followed by spearmint oil, titanium dioxide, *B. pumilus*, *E. nigrum* and eruca oil, respectively. The results showed a significant increase in all biochemical parameters (chlorophyll content, peroxidase and polyphenoloxidase growth parameters (plant height, fresh and dry weight) in tomato plants under all the tested treatments relative to control. [A. Hamza; A. Mohamed; and S. Hamed(Egypt), Egypt. J. Biol. Pest Control 26(1): 89-96, 2016].

Virulence of Entomopathogenic Fungi against the Vine Mealy bug, *Planococcus ficus* (Signoret) (Hemiptera: Pseudococcidae). Pathogenicity of the entomopathogenic fungi; *Beauveria bassiana*, *Metarhizium anisopliae* and *Verticillium lecanii*, was evaluated against the adults of the vine mealybug, *Planococcus ficus* (Signoret) (Hemiptera: Pseudococcidae) under laboratory conditions by dipping bioassays. Results showed that the virulence

of *B. bassiana* was higher than the others; *M. anisopliae* and *V. lecanii*. The LC₅₀ value was 6×10⁴ conidia/ml in case of *B. bassiana* isolate, and the LT₅₀ recorded 5.30 days at 5×10⁷ conidia/ml. *B. bassiana* isolate caused also highest mortality rate (98%), using 5×10⁷ conidia /ml, compared to the other two tested fungal isolates. These results demonstrated that the effectiveness of these entomopathogens is promising for the biocontrol of vine mealybug.[Ghada S. Mohamed (Egypt), Egypt. J. Biol. Pest Control 26(1):47-51, 2016]

Nematode Biomanagement as an Alternative Strategy to Chemical Approach. Thirteen powdered botanicals were used under greenhouse conditions in joint treatments with four organic amendments at two different transplantation times; to assess the influential consequences of adding materials of botanical and animal origin in relation to transplanting time; on the development of the root-knot nematode, *Meloidogyne incognita* infecting eggplant, *Solanum melongena* cv. Alabaster. Results obtained indicated that the concomitant application of botanical powders along with organic amendments as pre-transplanting treatments caused a considerable reduction in the number of galls and egg-masses per plant more than in the case of post-transplant treatments. The best reducing ability was obtained from treatments that included pigeon litter, shrimp shells, chicken litter and rabbit droppings, respectively; when joint with botanical powders specially chilli pepper and garlic. Plant vigor represented by shoots weight and length and root weight responded positively to most of the applied treatments in case of post-transplanting than in case of pre-transplanting treatments.[A. A. Osman, A. M. Kheir, and Esraa O. Abdel-ra'ouf,(Egypt), Egypt. J. Biol. Pest Control 26(1): 75-81, 2016].

IRAQ

Evaluation of Efficacy of Two Local Isolates of the Entomopathogenic Fungi, *Beauveria bassiana*(Bals) Vuill, (BSA1 and BSA3) on the Larval Stage of *Trogoderma granarium* (Everts) under Laboratory Conditions. This study was conducted to evaluate efficiency of two isolates of *Beauveria bassiana* (BSA1 and BSA3) on larval stages of the Khapra beetle *Trogoderma granarium* .The results showed significant and high mortality rates on larval stages and highest larval mortality rates were caused by fungus spore suspension of 1×10⁸ /ml at 82.3 % and 93.6% for BSA1 and BSA3, respectively. However, mortality rates found to be decreased with larval stage. Potentially, the mortality of 1st instars was 87.6 % and 91.6% for the BSA1 andBSA3 respectively. The average mortality of the 5th larval stage were decreased for fungal isolates at 58.2 % and 63.6 % for BSA1 and BSA3.The results showed the relationship between high spore suspension of *B. bassiana* and larval stage 1 × 10⁸ spore/ml showed highest mortality at 1st instars 89.1 % and 95.0 % for BSA1 and BSA3 with reduced mortality with 1 × 10⁴ spore/ml on 5th larval stage of 48.1% and 57.7 %, for the two isolates respectively, after 18 days of treatment. Results obtained suggest that the two isolates BSA1 and BSA3 of *B. bassiana* has good potential against larval stages of the Khapra beetle *Trogoderma granarium* . [Feryal B. Hermize (Iraq), Iraqi Association of Genetic and Environmental Resources Conversation, Cairo, Egypt, 4(1): 196-202, 2016.]

Activity of the Fungicide Pavistin and Neem Extract against *Trichoderma viride* the Causal Green Mold Disease on Oyster Mushroom (*Pleurotus ostreatus* (Jacq. Fr.). This study was conducted to detect the fungi contaminating *Pleurotus ostreatus* growing medium and evaluate the activity of the fungicides Pavistin and Neem extract to restrict their growth on PDA and on culture medium. Results of isolation and detection from samples of *Pleurotus* culture medium on PDA revealed the dominance of *Trichoderma viride* at 100 %. *T. viride* showed high capacity of antagonism toward *P. ostreatus* 86.66%. The addition of Pavistin at concentration 10%and Neem extract at 1% into PDA have inhibition *T. viride* growth at 94.9% and 55.7% respectively, and inhibition of the growth of oyster mushrooms by 22.5 % and 10.5 %, respectively. The treatment of *P. ostreatus* culturing medium with Pavistin at 10%, Neem extract at 20 ml/Kg and combination of them have caused decrease in *P. ostreatus* infection with *T. viride* to 20%,40% and 0% respectively compared with 80% in control . [Hurria H.AL-Juboory, Mazin H.Hussien, Mothani A. Azziez (Iraq), Iraq Association of Genetic and Environmental Resources Conversation,Cairo,Egypt,4(1): 211-218,2016].

Biological and Physiological Effects of *Coriandrum sativum* on House Fly *Musca domestica* (Diptera: Muscidae). This Study was conducted evaluate effects of (leaves, fruits) powder and (oil, alcohol) extract of Coriander (*Coriandrum sativum*) plant on some biological and physiological aspects of House fly, *Musca domestica* at laboratory conditions. Result showed that these preparations caused biological effects represented in high dead percentage in second instar, fed on different concentrations of food treated with them reached to 27.6, 55.3 at concentration 20% of leaf and fruit powder respectively and 67.3, 77.2% at 10% of oil and alcohol extract

of fruit, respectively. Furthermore, the study also showed reduction in pupation and adults emergence rate. However, leaf powder had slighter effect than powder and extract of fruit of tested plant. The study showed physiological effects in treated larvae such as molting failure at subsequent molt to larvae, pupa or to adult, also morphological aberration represented in small size, dark pigment, reduce age and folding of the adult wings. In almost all cases, the higher concentration used the more morphogenetic aberration obtained. This study led us to conclude that coriander extract had chemical compounds which played a negative role in some biological and physiological aspects of house fly.[Feryal Bahgat Hermize, Raad Fadhel Ahmed and Maki Hamed Abed-Ali (Iraq), Baghdad Science Journal, 13(1),2016.]

Molecular Identification and Integrated Management of the *Fusarium oxysporum* f. sp. *cucumerinum* the Causal Agent of Fusarium Wilt Disease of *Cucumis sativus* L. in Iraq. This study was aimed to isolate and identify the phytopathogenic fungus *Fusarium oxysporum* f. sp. *cucumerinum* (Foc) the causal agent of the *Fusarium* vascular wilt disease of cucumber in the middle and south of Iraq. The results of study indicated the presence of the pathogen with percentage of appearance of 71.43% with frequency 46.43%. Molecular identification carried out using polymerase chain reaction technique indicated the presence 18 isolates of Foc pathogenic group I and 6 isolate of Foc pathogenic group II. Among these, the isolate Foc-b3 was most virulent under *in vitro* pathogenicity test on the cucumber seed while it was exhibited 0% seed germination compared with control. An attempt of integrated management of *F. oxysporum* f. sp. *cucumerinum* under *in vitro* conditions was also carried out and significant inhibition were reported on the application of various bioagents such as *Chaetomium cupreum* (Cc), *Trichoderma viride* (Tv) and *Bacillus pumilus* (Bp) on the potato dextrose agar (PDA). Further, under greenhouse conditions, combined application (tetra inoculums) of Cc+Tv+Bp+ Salicylic acid (Sa) was significantly reduced the percentage of the disease incidence and severity up to 0% as compared with the control where it was reported 97.50%, 75.72% respectively. Effect of this combination was also reported on the dry weight of the plants and significant improvement (0.975 gm/plant) was reported as compared to control (0.098 gm/plant).[Safaa N. Hussein Iraq], Journal of Experimental Biology and Agricultural Sciences, 4(IV): 389-397, 2016].

Identification and Control of Strawberry Root and Stalk Rot in Iraq. This study was conducted to identify, test the pathogenicity of strawberry root and stalk rot pathogens and evaluate the efficiency of some biocontrol agents and fungicides to control the disease. The isolation and identification of fungi associated with infected plant samples showed that *Rhizoctonia solani* was detected in all studied commercial strawberry lath houses at different location of Baghdad-Iraq. The frequency percentages ranged 25.5-63.5 % and 10.75 - 40 % for *Rhizoctonia solani* and *Phymatotrichopsis omnivora* respectively. Pathogenicity test revealed *R. solani* and *P. omnivora* isolates were highly pathogenic to strawberry plants. The disease severity percentages of *R. solani* and *P. omnivora* were 83.0-100% and 55.5-62.0 % respectively. The isolates HRs3 and KPh1 of *R. solani* and *P. omnivora* respectively, caused the highest disease were used during this study. The control agents Rizolex and Tachigarin fungicides, *Azotobacter chroococcum* and *Pseudomonas fluorescens* have shown high efficiency against *R. solani* and *P. omnivora* on culture media (PDA). The treatment of biocontrol agent's *A. chroococcum* and *P. fluorescens* and the fungicide Rizolex and Preserve Pro showed high efficiency in disease control and enhance plants growth under greenhouse conditions. Disease severities on foliar and root system in *A. chroococcum* , Rizolex , Preserve Pro and *P. fluorescens* were 6.66 and 0.00 %, 20.00 and 0.00 %, 13.33 and 0.00 % and 13.33 and 0.00 %, respectively, in plants infected with *R. solani*. Whereas, they were 6.66 and 0.00%, 13.33 and 0.00 %, 13.33 and 0.00 %, and 13.33 and 0.00 %, respectively, in plants infected with *P. omnivora*. This study is the first report of the occurrence of root and stalk rot disease caused by *R. solani* and *P. omnivora* on strawberry plants in Iraq.[Kamil S Juber, Hurria H.Al-Juboory, Saba B.Al-Juboory(Iraq), International Journal of Environmental & Agriculture Research (IJOEAR),2(2),1850-2454, 2016]

Defensive Behavior in Lemon Butterfly *Papilio demoleus* L. (Lepidoptera: Papilionidae) against Predation. This research investigated the effect of camouflage in larvae of lime swallowtail, *Papilio demoleus* L. as a prey on the predator behavior. Three experimental groups were done to find out whether young chicks, *Gallus gallus domesticus*, as predators can recognize and attack the initial larvae of *P. demoleus* L. that resemble bird droppings from the larvae frass, or the latest greenish fifth instar onwards from different backgrounds colors. Experiments were first conducted by introducing the young larvae either alone or mixed with frass or the frass only to the chicks. All the chicks have failed to identify the larvae from the frass. Second experiment on the fifth instar onwards larvae were conducted by putting them on different backgrounds colors, a closely matched or contrasted

with the coloration of the prey. Chicks showed greater attack for prey on contrasting backgrounds, and did not recognized or attacked the prey on a matching background. Third experiment was tested the ability of the chicks to recognize and attack the two dimorphic colors of the pupae. The experiment provides evidence that prey on contrast background may produce better recognition and attack for the predators. [Hind Suhail Abdulhay (Iraq), Journal of Entomology and Zoology Studies, 4(5): 301-304, 2016].

Cost Benefit Ratio of Infected Tomato Yield by Fusarium Wilt Disease. The present investigation was carried out under Bio-net house conditions in the pots in SHIATS, Allahabad, India to evaluate number of fruits per plant and five fruits per replicate (g) and cost benefit ratio of yield by using solarized and non-solarized soil, Neem cake powder and Carbendazim 50 % WP with six treatments and five replications. The results showed that the treatments Carbendazim followed by Neem cake with Carbendazim were significantly increased in the number of fruits per plant (8.40, 8.15) respectively at 150 days, the treatments Carbendazim followed by Neem cake were significantly increased in the five fruits per replicate (g) (148.70, 143.80 g) respectively at 125 days, the treatments Carbendazim with solarized and non-solarized soil followed by Neem cake were recorded the highest cost benefit ratio and incremental cost benefit ratio with (1:4.02, 1:2.57 and 1:2.29) respectively.[Hussein Ali Salim & Basheer Nsaif Jasim(Iraq), International Journal of Research in Applied Natural and Social Sciences, 4(4): 103-108, 2016].

Biological Activity of Some Aqueous Plant Extracts Against *Vanessa cardui* Linnaeus (Lepidoptera:Nymphalidae). Laboratory experiment carried out in Directorate of Diyala Agriculture, plant pathology Lab during 2016. Aqueous extracts of three plants, namely Neem (*Azadirachta indica*), Nerium (*Nerium oleander*) and Eucalyptus (*Eucalyptus* sp) with insecticide (Confidor 200 SL) were tested against caterpillars of *Vanessa cardui* in plastic Jars. Neem and confidor were reduced the larval population about (83.3,83.3%), (100, 96.6%) and (100,100%) after 14,21and 28 days respectively also Neem, confidor and Nerium were decreased the days to arrival 100 percent of mortality after (21, 28 and 35 day) respectively.[Hussein Ali Salim, Khani Omar Mosa, Hussein Ali Khalid, Hiba Salman Gasam and Hadi Sabar Faihan (Iraq), Journal of Entomology and Zoology Studies , 4(5): 262-264,2016].

Biological Control of The Date Palm Tree Borers, *Oryctes* Spp.(Coleoptera: Scarabaidae: Dynastinae) . The efficacies of the entomopatogenic nematodes (EPN), *Rhabdits blumi*, and the entomopatogenic fungi (EPF), *Beauveria bassiana* as a biocontrol agents were determined for the date palm tree borers, *Oryctes* spp. (Coleoptera: Scarabaidae: Dynastinae) in laboratory and field trials, during 2015 season. Laboratory results demonstrated that direct spray of 1000 infective juveniles (IJs) per mL of *R. blumi* on Arabian rhinoceros beetle (ARB), *Oryctes agamemnon arabicus* caused 71.67% and 15% mortality in the larvae adults, respectively. Treating the food source of the larvae (pieces of fresh tissue of the frond bases) with the same dose and period resulted in 48.33% mortality in larvae and 10% in the adults. Laboratory results also showed that using concentration 1×10^9 conidia/mL-1 of *B. bassiana* as direct spray of the ARB larvae, led to 66.7% and 60% as treatment of the food source. Field experiments results showed that injection of 50 mL per palm tree with a concentration of 1000 IJs/mL of *R. blumi* inflicted about 42% mortality in ARB larvae infested the tree. Meanwhile, injection 50 mL of 1×10^9 conidia/mL-1 of *B. bassiana* imposed 50% mortality in larvae. Results of this investigation illustrate the possibility of using *R. blumi* and, *B. bassiana* as a bicontrol agents against palm borers in IPM programs.[Mohammed Khalaf, Hussain Alrubeai, Falah Naher, Mustafa Jumaa (Iraq) Book of Proceedings, VII International Scientific Agriculture Symposium (Agrosym 2016) Jahorina, Bosnia and Herzegovina. 1561- 1566,2016].

JORDAN

Survey of Aphid Species and Associated Parasitoids in Al-Homra, Jordan. Five aphid species were identified in Al-Homra region, Jordan. Those aphid species are: *Aphis gossypii*, *Aphis craccivora*, *Aphis citricola*, *Myzus persicae*, and *Brachycaudus amygdalinus*. In addition, four parasitoids of the Braconidae family were identified. These parasitoids are *Aphidius colemani*, *Aphidius* sp., *Trioxes* sp., *Ephedrus persicae*, and one species *Pachyneuron aphidis* that belongs to the Aphelinidae family and one hyperparasite belongs to the Alloxistidae family. aphids parasitoid population were found belonging to *Aphidius colemani* and *Pachyneuron aphidis* on *Aphis gossypii* and *Myzus persicae* were in large number in April. [Hazem S Hasan (Jordan), Journal of Entomology and Zoology Studies, 4(5): 01-04, 2016].

Biological Studies on the African Fig Fly, *Zaprionus indianus* Gupta (Diptera: Drosophilidae). The African fig fly, *Zaprionus indianus* Gupta, is a widely distributed polyphagous drosophilid fly of tropical origin. Its occurrence in Jordan was first reported on date palms from the Central Jordan Valley in June 2012. Studies on biological aspects of a fly population collected from Northern Jordan Valley were carried out under laboratory conditions at 25±1°C, 75±10% RH, and 14 h photoperiod. Mashed banana fruits with dry active yeast of *Saccharomyces cerevisiae* were used for the first time as a diet for larval and adult stages. The data obtained showed that the average mating period was 2.5 days, the pre-oviposition period 2.7 days, the oviposition period 42.7 days, incubation period 24.5 h, hatching of eggs was 91.7%, duration of larval stage 7.4 days, pupal stage 6.8 days; adult male life span 42.2 days, adult female life span was 37.7 days. The larval stage had the highest mortality followed by the pupal stage and then the egg stage. The life cycle lasted 13.9 to 23.2 days with an average of 17.9 days. Emerged adult flies showed a sex ratio of 1.0. The obtained results provided basic data that may help in the management of this pest in Jordan. [Amani Alawamleh, Ahmad Katbeh-Bader, Naim Hassan, Ibrahim Al-Jboory, Anna Maria D'onghia(Jordan), Book of Proceedings, VII International Scientific Agriculture Symposium (Agrosym 2016) Jahorina, Bosnia and Herzegovina, 2016].

Fungal Entomopathogens as Endophytes: Can They Promote Plant Growth? Two experimental replicates were conducted to test whether strains of *Beauveria brongniartii* (BIPESCO2 and 2843) and *Metarhizium brunneum* (BIPESCO5) can endophytically colonize *Vicia faba* plants and improve their growth by comparing them with an endophytic strain of *B. bassiana* (NATURALIS®). The plants were inoculated through foliar spray and the effect of inoculation on plant height, leaf pair number, fresh root and shoot weights was measured at 7 and 14 days post inoculation (dpi). Endophytic colonization of different plant parts with the tested fungal strains were confirmed 7 and 14 dpi through re-isolation of inoculated fungi onto selective media and subsequent Simple Sequence Repeat (SSR) marker-based genetic identification. All tested strains were able to endophytically colonize leaves, stems, and even roots of inoculated plants 7 and 14 dpi, but per cent colonization varied significantly among strains and plant parts within each sampling date. Foliar inoculation of plants with the tested strains increased plant height, leaf pair number, fresh shoot and root weights; however, the increase was not always consistent across sampling dates in both experimental replicates. This study provides the first evidence for the endophytic colonization of plants with two strains of *B. brongniartii*, an important biocontrol agent of *Melolontha melolontha* and other scarab beetles in several European countries, and thus extends previous reports on the ability of entomopathogenic fungi to act as endophytes. It also presents possible explanations for the lack of consistency in the plant growth promotion obtained by the foliar inoculation of entomopathogenic fungi. [Lara R. Jaber and Jürg Enkerli (Jordan), Biocontrol Science and Technology, 2016, <http://dx.doi.org/10.1080/09583157.2016.1243227>]

LEBANON

Wild Plants Could Play A Role In The Spread of Diseases Associated with Phytoplasmas of Pigeon Pea Witches'-Broom Group (16SrIX). Phytoplasmas are cell wall-less prokaryotic parasites associated with diseases affecting hundreds of plant species. In the Middle East, phytoplasmas of taxonomic subgroups 16SrIX-B and -C are the etiological agents of important diseases of almond and sesame, and are transmitted from plant-to-plant by leafhoppers and planthoppers. In the present study, surveys on wild plants as reservoirs of 16SrIX phytoplasmas have been carried out in North and South Lebanon. During field surveys, leaf samples were collected from 261 wild plants belonging to 41 species within 25 families. PCR-based analyses allowed the detection of 16SrIX phytoplasmas in the leaf samples of 24 plants belonging to 12 species. Eight of such species have been reported as phytoplasma hosts for the first time. Molecular characterization by nucleotide sequence analysis of 16S rRNA and rplV-rpsC genes revealed that the infected wild plant species harbored 16SrIX-C phytoplasma strains genetically undistinguishable. *In silico* enzymatic digestion of 16S rDNA sequences of phytoplasma strains, described in previous works, allowed the recognition of two new tentative subgroups (16SrIX-G and -H) within group 16SrIX. Results of the present study highlighted the wide host range of 16SrIX-C phytoplasma, associated with almond broomings, an almond witches'-broom-like disease in Iran, and with sesame phyllody in Iran and Turkey. The potential adaptation of 16SrIX-C phytoplasma to numerous wild plants highlights the elevated risk of its spread throughout the Middle East and neighbouring geographic regions. [P. Casati, F. Quaglino, Y. Abou-Jawdah, L. Picciau, A. Cominetti, R. Tedeschi, M. Jawhari, E. Choueiri, H. Sobh, M. Molino Lova, M. Beyrouthy, A. Alma and P.A. Bianco (Lebanon), Journal of Plant Pathology, 98 (1): 71-81, 2016. [Doi: 10.4454/JPP.V98I1.026](https://doi.org/10.4454/JPP.V98I1.026)].

***Xylella fastidiosa* Does Not Occur in Lebanon.** *Xylella fastidiosa* has been reported as responsible for a devastating disease on olive trees in Apulia region (southeastern Italy), characterized by a quick decline syndrome. In Lebanon, the pathogen was recently associated with leaf scorch symptoms on oleander, and reports on leaf scorch and dieback of olive trees branches by technicians and farmers have shown an increasing trend in the main agricultural areas. To assess the occurrence and distribution of the pathogen in Lebanon, samples of twigs from olive trees (82), olive seedlings (26), grapevine (30), oleander (32) and ornamentals imported from Italy (48) were analysed by isolation on four agarized media, serological techniques (ELISA and DTBIA) using *Xylella fastidiosa*-specific antibodies and by PCR, using three specific sets of primers. Results unequivocally demonstrated that all the collected samples were free from the pathogen. As well, both detection protocols and attempts at isolating the pathogen on agarized media demonstrated that oleander samples gathered from American University campus in Beirut, where *X. fastidiosa* was previously reported, were not infected. Nevertheless, continuous monitoring and rigorous control measures of propagative materials are necessary to prevent the introduction of *Xylella fastidiosa* in Lebanon.[Wassim Habib, Franco Nigro, Elvis Gerges, Fouad Jreijiri, Youssef Al Masri, Milad El Riachy and Elia Choueiri (Lebanon), Journal of Phytopathology,164: 395-403,2016]. [Doi: 10.1111/jph.12467](https://doi.org/10.1111/jph.12467)].

Detection of *Polymyxa betae* Using Scanning Electron Microscopy and Soil Borne Viruses in Sugar Beet by Multiplex RT-PCR in Syria and Lebanon. *Polymyxa betae* Keskin is considered the only vector of *Beet necrotic yellow vein virus* (BNYVV) and *Beet soil borne virus* (BSBV). In addition, *P. betae* is a vector of other viruses such as *Beet soil borne mosaic virus* (BSBMV) and Beet virus Q (BVQ). Six soil samples were collected from different locations of sugar beet fields previously infected with Rhizomania in Syria and Lebanon. Detection of resting spores of *P. betae* was carried out in the roots of sugar beet using scanning electron microscopy with multiple dyes and magnifications up to 6000 x. Total RNA was extracted from sugar beet samples infected with *P. betae* and subjected to multiplex-PCR test using specific primers of BNYVV, BSBV, BSBMV and BVQ. BNYVV was detected in Homs (Talbisah), Al Ghab (Ein Elkorum) and Lebanon (Maallaka) samples; BSBV was found in Homs (Talbisah) and Lebanon (Maallaka) samples; whereas BSBMV was only detected in Lebanon (Al rawda).[Mouhanna, A.M., L.S. Dibeh and E. Choueiri (Lebanon), Arab Journal of Plant Protection, 34(2): 106-113,2016]

SYRIA

Parasitoids on Codling Moth *Cydia pomonella* (Lepidoptera: Tortricidae) in Apple and Walnut Orchards in Syria. A survey was performed during 2007-2013 to investigate the complex of parasitoids on *Cydia pomonella* (Codling moth) in apple and walnut orchards in Syria. This study showed the presence of 17 species belonging to 7 families from two orders (Hymenoptera and Diptera). The Ichneumonidae and Braconidae families were most common, comprising 8 and 4 species, respectively. *Mastrus ridibundus* and *Neoplectops pomonella* were new records for Syria.[A.M. Basheer , Sh. I. Al haj, L. H. Asslan (Syria), EPPO Bulletin - Wiley, 46(2): 295–297,2016].

Allelopathic Effect of Walnut Tree on Weeds in Walnut Orchards in Lattakia Governorate, Syria. The aim of this study was studying the allelopathic effect of walnut tree *Juglans regia* by comparing the cover plant in both Apple and Walnut orchards in Eramo region, Syria. During of the beginning of March to the end of August (2013). The samples were taken from three locations of Apple and Walnut by using square (1x1) m². The result showed that weeds in both Apple and Walnut were varying of each other in number and kind. Where the number of weeds that were recorded only in Walnut orchards was 8, while that recorded just in Apple was 14, and the weeds that existing in both Apple and Walnut were 4. This difference belongs to Allelopathic effect of Walnut trees on the families and species of weeds. The weeds that appear in Walnut only considered as resistant species, and which appear only in Apple considered as sensitive species, and those appear in both Apple and Walnut considered as tolerance species, in the same geographic and environmental condition. It follows from this research the possibility of cultivation of some plant species such as *Medicago polymorpha* and *Vicia hybrid* as fodder crops in walnut orchards and that because of its high ability to tolerant of Allelopathic effect of walnut trees.[Shadi Ibrahim Alhaj; Jounar Aziz Ibrahim; Abdulnabi Mohamed Basheer; Louai Hafez Aslan(Syria), Accepted for publication in The Arab Journal for Arid Environments, Accepted for publication in The Arab Journal for Arid Environments,2016].

Susceptibility Evaluates of Somme Genotypes of Sorghum Against the Infestation by the Corn Stem Borer *Sesamia cretica* Led. (Lepidoptera: Pyralinidae). A field study was conducted at the biological control studies and research center, Faculty of Agriculture, Damascus University during the season 2012-2013 to evaluate the susceptibility of seven Genotypes of sorghum against the infestation by the corn stem borer *Sesamia cretica* Led. . Results showed that Jeeza15 distinguished by the highest infection rate of seedlings (23.19%), while the lowest percentage was on Ezraa5 (10.84%). At harvest infestation rates on Jeeza15 (23.19%), and the lowest on Ezraa7 (14.03%). Jeeza15 distinguished by the highest rate of dead hear (16.26%), while the lowest rate was on Ezraa67 (10.64%). Jeeza15 distinguished by the highest rate of loss of plant height (29.84%), while the lowest percentage was on Ezraa67 (17.69%). There were significant differences in the number of holes/plant, the lowest number of 2.5hole/plant on Ezraa67 and Mayo, while the highest on Jeeza15 (4.25 hole/plant). There were differences in the number of holes on one plant; the highest number was 3.75 hole/plant, while the lowest was 2.25 hole/plant on Ezraa7. The Length of tunneled/plant is differed depending on sorghum biotype, the longest tunnel was on Jeeza15 (32.16 cm), and the lowest was on Ezraa7 (2.25 cm). The number of larva on one plant is differed depending on sorghum biotype, the highest number was on Jeeza15 (3.75 larva/ plant), while the lowest number on Mayo (2.25 larva/ plant). Plant yield loss has ranged in different varieties between 43.22% for Kharabo113 and the highest percentage of 72.65% for Mayo.[Abdunabi Basheer, Abdelhakim Mohamed, Jamal Saleh (Syria), Accepted for publication in The Arab Journal for Arid Environments,2016].

Field Parasitism Levels of *Ceratitis capitata* Larvae (Diptera: Tephritidae) by *Aganaspis daci* on Different Host Fruit Species in the Coastal Region of Tartous, Syria. The Mediterranean fruit fly, *Ceratitis capitata* (Wiedemann) (Diptera: Tephritidae), is a key pest of fruit trees in Syria and is attacked by the larval-pupal parasitoid, *Aganaspis daci* (Weld) (Hymenoptera: Figitidae). The seasonal population dynamics and distribution of *A. daci* were studied in surveys of orchards [*Citrus reticulatum* (clementine), *Citrus sinensis* (maourdi blood orange), *Citrus paradise* (grapefruit), *C. sinensis* (sweet orange), *Eriobotrya japonica* (loquat), *Prunus persica* (peach), *Prunus domestica* (plum), *Malus domestica* (apple), *Ficus carica* (fig) and *Psidium guajava* (guava)] at eight locations along the coastal region of Syria, between November 2013 and November 2014. A total of 69.4 kg of infested fruits were sampled, yielding 4274 puparia. From these, 3173 emerged as *C. capitata* adults, 351 as hymenopteran parasitoids and 750 did not eclose. The parasitoids were identified as *A. daci* (Hymenoptera: Figitidae) and *Psyttalia* sp. (Szépligeti) (Hymenoptera: Braconidae). The predominant species was *A. daci* comprising 348 (99.1%) of the total number of parasitoids collected. Populations of *A. daci* were present from May 2014 to September 2014, and numbers increased with increasing temperature to peak at 32.05% and 34.01% parasitism in June and August 2014, respectively. Parasitoids were only retrieved from larvae reared from loquat, grapefruit, peach and guava with parasitism levels of 1.68%, 30.76%, 18.28% and 16.15%, respectively. These results are important because they suggest that populations of *A. daci* have potential to be used for biological control in integrated pest management programmes for *C. capitata* in the coastal region of Syria.[Ali Y. Ali, Ahmad M. Ahmad, Jafer A. Amar, Rabea Y. Darwish, Ali M. Izzo & Samir A. Al-Ahmad(Syria), Biocontrol Science and Technology, 26:12, 1617-1625,2016. DOI: [10.1080/09583157.2016.1229756](https://doi.org/10.1080/09583157.2016.1229756)].

A Survey of Entomopathogenic Nematodes of the Families Steinernematidae and Heterorhabditidae (Nematoda: Rhabditida) in Damascus Countryside of Syria. A survey of entomopathogenic nematodes was conducted in Damascus countryside from January 2011 to December 2013. Soil samples were tested for the presence of steinernematid and heterorhabditid nematodes by baiting with *Galleria mellonella* larvae. Of the 189 soil samples studied 17 were positive for entomopathogenic nematodes (9%), with 11 of these positive samples (65%) containing *Heterorhabditis* and 6 (35%) *Steinernema* isolates. Morphological studies were carried out to characterize eight isolates. The *Heterorhabditis* isolates collected in Syria were identified as *Heterorhabditis zealandica* (Poinar, 1990), *Heterorhabditis indica* (Poinar et al., 1992) and *Heterorhabditis bacteriophora* (Poinar, 1990). *Heterorhabditis zealandica* was isolated from 4 sites. *Heterorhabditis indica* and *H. bacteriophora* were isolated from two sites each. Entomopathogenic nematodes were mainly found in stone fruit orchards and apple orchards but also in citrus groves, vineyards, and walnut orchards.[Jawish, A., Al-assas, K. and Basheer, A.(Syria), EPPO Bulletin, 45: 81–89. doi: [10.1111/epp.12188](https://doi.org/10.1111/epp.12188),2015].

A Drift Prediction Model for the Tunisia Context: A Validation Approach. To improve agricultural production, pest control is necessary. To achieve this objective, pesticide application is one of the most practiced methods. But, for a better coverage of the target, this technique requires small droplets to control pests efficiently. However, during crop spraying, important quantities of this droplet category are transferred to the environment, with negative impacts on air, soil, water and health. So, the different compartments of the environment will be polluted, especially in an intensive irrigated system. The need of prediction of spray drift has led to the development of a global approach that evaluates drift potential and plant retention in Tunisian context. The central component in this approach is a drift prediction model "DriftL". It was developed using an advection-diffusion representation for diameter classes representing the spray and it includes evaporation simulation. Tests were set up in laboratory conditions with different nozzle settings in a wind tunnel to develop the model and under a mobile boom to evaluate plant retention. Both wind tunnel and mobile boom tests were used in a combined approach to evaluate the amount of droplets lost in the air (volatilization). Predictions of these approaches were finally compared to field test results with two spraying setups (spraying Volume Median Diameter of 127 and 322 μm). DriftL was compared to three others Drift models: DRIFTSIM, AgDrift and the model of the European group Forum for Coordination of Pesticide Fate Models and their Use (FOCUS). The Federal Biological Research Center for Agriculture and Forestry in Germany (BBA) drift tables are referenced in the literature and are widely used by the scientific community, so they were used as reference values for comparing the four model results. These comparisons showed that the combined laboratory and modeling approach give coherent results that could be used with few improvements to achieve a global balance of pesticide losses and provide farmers with a tool to decrease them. [Bahrouni, H., Ben Nouna, B., Sinfort, C., Hamza, E., Chaabane, H. and Ben Abdallah, M.A.(Tunisia), Tunisian Journal of Plant Protection 11:143-155,2016.]

An Overview Analysis on the Best Irrigation and Soil Management Practices to Reduce Environmental Impact on Groundwater Resource: A Summary of New Evidence. Pesticides used against bioaggressors have an important role in increasing agricultural productivity in the last 50 years, despite diminishing crop land acreage. In fact, pesticides have now become an integral part to protect agricultural productions. It has been estimated that globally nearly \$38 billion are spent on pesticides each year. In this context, the groundwater resource protection is a compromise factor for a sustainable use of pesticides and will constitute one of the greatest challenges facing Tunisian's government today. Two main strategies could be considered, (i) to optimize the use of pesticides by adopting the Integrated Pest Management (IPM) approach and (ii) to reduce the environmental impact by using the Best Irrigation Practices (BIP) and the Best Soil Management Practices (BSMP). However, in the last approach, the reduction of pesticide leaching to groundwater can reach 50% when BMP and BSMP are considered. The main purpose of this paper is to review the new evidence concerning the groundwater environmental protection considering BSMP and BIP concepts as two essential components to strengthen the IPM concept. For this, a synthesis of research works from national and international experiences is undertaken. The results of these experiences are described and analyzed according to their relevance on BIP and BSMP to reduce environmental impact of pesticides upon groundwater. [Ben Nouna, B., Bahrouni, H., Rezig, M., and Ben Abdallah, M.A.(Tunisia), Tunisian Journal of Plant Protection 11: 117-132,2016].

Laboratory Evaluation of Side Effects of Kaolin on Two Predator Species Found on Olive Groves. Kaolin can be applied to control the olive fruit fly, *Bactrocera oleae*, which represents the major pest of olive crop. This work presents laboratory trials to evaluate the side effects of kaolin-based treatments on the biology and the behavior of two predators frequently found in Tunisian olive groves namely *Anthocoris nemoralis* and *Chrysoperla carnea*. This study showed that kaolin suspension (5 kg/hl) did not affect egg mortality and last instar larvae development of *C. carnea* and *A. nemoralis*. This suspension had practically no impact on mortality and longevity of the two predatory adults. However, the number of eggs laid by *A. nemoralis* females on leaves treated with kaolin was significantly reduced compared to the control. In contrast, *C. carnea* females showed a significant increase of oviposition on treated leaves. Moreover, the egg hatching rate was not influenced by kaolin treatment for both predators. Despite having some negative effects, kaolin could be considered as a good alternative to pesticides in organic olive groves. [Gharbi, N. and Ben Abdallah, S.(Tunisia), Tunisian Journal of Plant Protection 11: 83-90,2016].

Determining Effect of Ethyl Formate and Vapormate® on Disinfestation Efficiency and Organoleptic Quality of Date Fruits. Perfectly integrated into the Tunisian economy, date sector is undergoing a great

expansion in production and exports. Infestation is a major problem encountered during the dates' postharvest period. Consequently, there is a need to maintain fruit quality during handling, packaging and storage. Currently, after the methyl bromide (MB) restriction, the industry needs an efficient and environmental-friendly alternative against insects. In this study, ethyl formate (EF) had been chosen to fumigate dates of Deglet Nour variety. Initially, trials at laboratory scale were performed with the most resistant larvae stage of the carob moth (*Ectomyelois ceratoniae*). For this purpose, three EF concentrations (114.4, 127.8, and 143 g/m³) and two exposure durations (2 and 3 h) were tested. Results revealed that the most efficient combination was 143 g/m³ of EF for 2 h, which caused 98.12% mortality. Then, experiments were undertaken at a semi-industry scale with Vapormate®, the commercial version of EF containing a combination of EF and CO₂. The mortality rate was further improved, reaching 100%. However, the CO₂ synergistic effect was not demonstrated. In addition, the effects of EF and Vapormate® on the quality of fumigated fruits regarding color, sugar content and aromatic composition was assessed and discussed. No changes in fruit quality were observed after fumigation.[Bessi, H., Ferchichi, C., Yousfi, S., Guido, F., Issaoui, M., Bikoba, V., Mitcham, E.J., Grissa, K., and Bellagha, S.(Tunisia), Tunisian Journal of Plant Protection 11: 51-62,2016].

Alternative Methods for Control of Postharvest Sour Rot of Citrus. This experiment is to evaluate the antifungal potential of five Generally Recognized As Safe (GRAS) compounds (sodium methylparaben (MPS), sodium ethylparaben (EPS), potassium sorbate (SK) sodium benzoate (BS) and sodium propionate (PS)) applied as 3% (w/v) aqueous dips at 20°C or combined with hot water at 50°C as a control mean of citrus postharvest sour rot caused by *Geotrichum citri-aurantii*. GRAS compounds were first evaluated in vivo at 20°C with 'Ortanique' mandarins harvested in Valencia. Results showed that among the five GRAS compounds tested, EPS, MPS, SK and BS were slightly effective against *G. citri-aurantii*. These selected GRAS compounds were then assayed in vivo with 'Barnifield' navel oranges, applying dips at both 20 and 50°C. Results showed that heat improved the efficacy of all GRAS compounds. In addition, EPS and SK solutions at 20°C showed similar effect than a commercial fungicide based on the active compound propiconazole (Melanite®), while MPS, EPS, SK and BS at 50°C were significantly more effective than the fungicide. Thus, this study demonstrated that EPS and SK dips at 20°C and MPS, EPS, SK and BS dips at 50°C could be of use to control citrus sour rot and therefore represent a promising alternative to the use of synthetic fungicides without risks for the consumer health.[Nihed Jerbi, Beatriz de la Fuente, Verònica Taberner and Lluís Palou(Tunis), Instituto Valenciano de Investigaciones Agrarias - IVIA, Valencia (Spain) ,page: 67, 2015.]

TURKEY

Efficacy of *Metarhizium anisopliae* and Some Entomopathogenic Fungi on Larvae of Fall Webworm, *Hyphantria cunea* (Drury) (Lepidoptera: Arctiidae). The fall webworm, *Hyphantria cunea* (Lepidoptera: Arctiidae) is a dangerous and destructive pest for forest, fruit trees and ornamental plants. Insecticides are successful to reduce population of this pest, but they cause environmental pollution. This study determined that *M. anisopliae* was the most efficacious in controlling second and third instars larvae of *H. cunea* at two methods under laboratory conditions. *M. anisopliae* isolate caused to pathogenicity on second instar larvae with the highest lethal effect 85% and the mortality was significantly higher than that caused by any of the other isolates. *M. anisopliae* caused 68.33% mortality and it was the most efficacious in controlling third instar larvae of *H. cunea*. The other isolates (TR-05, TR-78.07 and TR-11) found less effective on larvae of *H. cunea*. This study showed that isolate of *M. anisopliae* has virulent and highly potential for biological control on larvae of *H. cunea*. [Onur Aker and Celal Tuncer (Turkey), Journal of Entomology and Zoology Studies.4(5): 171-176, 2016.]

***XYLELLA FASTIDIOSA* NEWS**

TAIEX workshop Ankara, Turkey 30 May - 01 June 2016 (TAIEX Workshop on Managing the *Xylella fastidiosa*) AGR 61696.

The workshop aims to provide assistance in preparing the *Xylella fastidiosa* surveillance programme by sharing knowledge on the biology of *X. fastidiosa*, its vectors, host/vector/pathogen interaction, epidemiology, as well as preventing, detecting and controlling this harmful organism.
http://ec.europa.eu/enlargement/taix/dyn/taix-events/library/detail_en.jsp?EventID=61696



TAIEX workshop Podgorica, Montenegro (TAIEX Workshop on Phytosanitary Measures Against *Xylella fastidiosa*) 21 to 22 July 2016 AGR 61694

The workshop aims to present and explain in details how to manage the harmful organism *Xylella fastidiosa*, and to assist in what guidelines and procedures need to be prepared as part of surveillance.
http://ec.europa.eu/enlargement/taix/dyn/taix-events/library/detail_en.jsp?EventID=61694



TAIEX Workshop on Phytosanitary Measures Against *Xylella fastidiosa*) 24 to 28 October, IAM-BARI

The aim of the study visit is to present in details how to manage the harmful organism *Xylella fastidiosa*, which includes organization and competences between state administration, scientific institutions and phytosanitary inspection and also official procedures with accent on practical implementation of phytosanitary measures in the field. The laboratory diagnostic methods including analysis and innovative diagnostics were also targeted in this visit.



FAO-IPPC-CIHEAM International Workshop on *Xylella fastidiosa* & the Olive Quick Decline Syndrome (OQDS) 19-22 April 2016.IAM-BARI.

http://www.iamb.it/mod=static_content,206,566,international-training-workshop-on-xylella-fastidiosa.htm

<https://www.ippc.int/en/news/the-fao-ippc-ciheam-international-workshop-on-xylella-fastidiosa-successfully-held-in-bari-italy/>

<http://www.neppo.org/en/2016/05/04/the-fao-ippc-ciheam-international-workshop-on-xylella-fastidiosa-successfully-held-in-bari-italy/>

Support of FAO and IPPC to Capacity Development for Preventing the Introduction and Spread of *Xylella fastidiosa* in NENA Countries, Tunisia

<https://www.ippc.int/en/news/strong-support-of-fao-and-ippc-to-capacity-development-for-preventing-the-introduction-and-spread-of-xylella-fastidiosa-in-nena-countries/>



On 14th-16th of November the **IAMB** (Mediterranean Agronomic Institute of Bari, Italy) hosted the Kick-off meeting of the Project “**Xylella Fastidiosa Active Containment Through a multidisciplinary-Oriented Research Strategy (XF-ACTORS)**”, funded under the H2020 Programme – EU.3.2.1.1. – *Increasing production efficiency and coping with climate change, while ensuring sustainability and resilience* – Topic **SFS-09-2016 – Spotlight on critical outbreak of pests: the case of *Xylella fastidiosa*.**

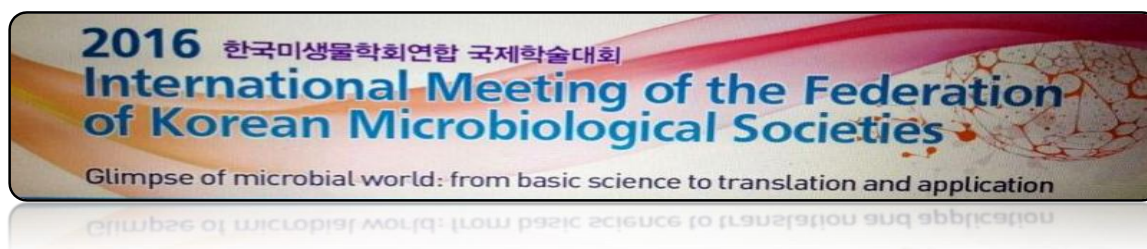
The program of the meeting included the active participation of the Coordinator and other representatives from different countries. After a brief overview given by Dr. **Donato Boscia (CNR-IPSP)**, the following speeches introduced the sessions of the meeting dedicated to different project tasks of XF-ACTORS.

Among others, the kick-off meeting discussed:

- The state of the art on the researches ongoing in EU
- The interactions and collaboration to be strengthen with the complementary project PonTE
- The project’s management and implementation plan, work packages and tasks
- The establishment of a common vision and understanding between partners with a view to the project’s goals, tasks and expected results

The last day included a technical field trip in the Salento peninsula, visit to different diseased olive groves.





The 2016 International Meeting of the Federation of Korean Microbiological Societies at A Glance.

The Federation of Korean Microbiological societies (IFKM) held its international meeting in KINTEX, South Korea on the 3rd and 4th of November 2016. The Korean Society of Virology (KSV), The Korean Society of Mycology (KSMY), The Microbiological society of Korea (MSK), The Korean Society for Microbiology (KSMi) and the Korean Society hosted the meeting for Microbiology and Biotechnology (KMB). The meeting included several symposia for each of the societies. Regarding the symposium of The Korean Society of Mycology, several prestigious Korean as well as international scientists have presented their work and shared their expertise. Several beneficial presentations and discussions have been conducted which were very informative and helpful to other researchers or visitors of the attendees. The core focus of the KSMY symposia this year was about the mycotoxigenic fungal contamination of agricultural and food products as well as the possibilities of finding efficient solution to such important issue. Among the speakers was **Professor/ Joan W. Bennett**, University of Rutgers, who shared some hints on her current as well as the previous work and an overlook on her exciting story as a determinant researcher after passing hard times during the Katrina hurricane in August 2005 in the US. Professor Bennett had obtained very important findings in her work on aflatoxins research as her work on the biosynthetic pathway paved the way for other various, following research for possible suppression of aflatoxin biosynthesis in the producing fungi. Although the hurricane Katrina have affected her life aggressively, she didn't give up, however, she has shown an amazing example of hope and determination to everyone as following such hard time she has started another research topic from which she also had amazing and helpful contribution in the field of volatile organic compounds and their various effects. Worth to mention that Professor/ Ibrahim Al-Jboory has also attended the symposium, followed and shared in the discussions held, and has communicated and got in touch with the Korean scientific life in the biological fields. The event was sponsored by several companies for laboratory equipment's and supplements, as they had the chance to promote their products and the new technologies. **Mohamed Mannaa** , Laboratory of Plant Disease and Biocontrol, College of Life Sciences and Biotechnology, Korea University, Seoul , Korea.



The 60th German Plant Protection Congress (Deutsche Pflanzenschutz-tagung (DPST), in Martin-Luther-Universität Halle-Wittenberg)

DPST is the most prestigious conference for plant diseases and plant protection in Germany in terms of diversity and the number of participants. The conference takes place once per two years and the official language is German. The 60th German plant protection congress took place from 20 to 23 September 2016 in Halle (Saale), was titled "Plant protection: Efficiency and diversity", in German "Pflanzenschutz: Effizienz und Vielfalt" with 220 posters and 400 presentations. **Among the participants there have been many participants from the Arab world contributed to this conference:**

- 1- Relative abundance of *Bactrocera zonata* in central Sudan. By Hayder Abdelgader and Faiza Salah from the University of Gezira, Sudan. (Country of origin: **Sudan**)
- 2- Selection of Entomopathogenic Nematodes for the Biological Control of major insect pests on Tomato. By Mokhtar Abdelraouf Abonaem from Julius Kühn-Institut, Germany. (Country of origin: **Egypt**)
- 3- Characterising the effect of the primary infection site on ears and environmental conditions on Fusarium head blight by IR-thermography. By Ali Al Masri, from University of Bonn, Germany. (Country of origin: **Syria**)

- 4- Simultaneous hyperspectral, fluorescence and thermal imaging for monitoring Fusarium head blight of wheat. By Ali Al Masri, and Elias Alisaac from University of Bonn, Germany. (Country of Origin: **Syria**)
- 5- Regulation of iron uptake and homeostasis during the hemibiotrophic lifestyle of *Colletotrichum graminicola*. By Emad Albarouki from Martin-Luther-Universität Halle-Wittenberg, Germany. (Country of Origin: **Syria**)
- 6- Determination the nectar amount of oilseed rape flowers grown from clothianidin-treated seed. By Abdulrahim Alkassab from the university of Bochum, Germany
- 7- Potential of root associated fungal and bacterial biocontrol agents (BCAs) against *Verticillium longisporum* infection of oilseed rape. By Dima Alnajjar from Georg-August-Universität Göttingen, Germany. (Country of Origin: **Syria**)
- 8- Field Efficacy of certain insecticides on the peach fruit fly, *Bactrocera zonata* (Saunders), on Guava and Citrus orchards. By Ahmed Sallam, Ahmed Salman, and Ali Hassan from Sohag University, Egypt. (Country of Origin: **Egypt**)
- 9- Viability of Beet soil-borne mosaic virus (BSBMV) and Beet necrotic yellow vein virus (BNYVV) reassortants and co-infection exclusion in *Nicotiana benthamiana*. By Hamza Mohammad from Leibniz University Hannover, Germany. (Country of Origin: **Syria**)
- 10- Development of virus-induced gene silencing (VIGS) based on the Beet necrotic yellow vein virus and Beet soil-borne mosaic virus. By Hamza Mohammad from Leibniz University Hannover, Germany. (Country of Origin: **Syria**)

All the above mentioned valuable information have been collected and sent by the PhD candidate who is the best ASPP representative in Europe. For this reason I decide to add his short resume and his last publication.

Ali Al Masri, Ph.D. candidate is a plant pathologist working on the application of sensor technologies for epidemiological investigations of Fusarium head blight (FHB) of wheat under field and controlled conditions. This research topic is mainly the core of his doctoral studies in the University of Bonn (INRES, Plant diseases and plant protection), Germany. He received his bachelor in agriculture (plant protection) in 2007 from Damascus University on studying the resistance of selected Syrian genotypes of wheat to Fusarium head blight under field conditions as a bachelor project. He completed his master studies (plant pathology) in 2012 at the Leibniz University of Hannover, Germany, on “Epidemiological investigations on the interactions between early blight (*Alternaria solani*) progression and host dynamics of tomato (*Solanum lycopersicum* L.)”.



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”Impact of primary infection site of *Fusarium* species on head blight development in wheat ears evaluated by IR-thermography. The effect of the primary infection site by *Fusarium graminearum* and *F. culmorum* within wheat ears on Fusarium head blight (FHB) was investigated under controlled conditions. FHB development was assessed visually and thermographically following inoculation by: (i) spraying ears, or injecting inoculum into spikelets on (ii) tip, (iii) centre and (iv) base of the ears, separately. *Fusarium* infection significantly increased the temperature span within ears 6 days post inoculation (dpi), especially infections starting at the ear tip. The temperature difference between air and ear was negatively correlated to FHB severity and enabled disease detection even 29 dpi. *F. culmorum* caused significant higher disease severity neither reflected in the frequency of infected kernels nor in thousand kernel weight (TKW). Spray inoculations had the strongest effect on TKW whereas tip inoculations had no effect. Centre and base inoculations had intermediate effects on TKW, although FHB levels did not differ with the same trend among inoculation scenarios. The overall low correlations among FHB severity, infected kernels and TKW are explained by the pathogen spread within ears – downwards better than upwards – and the effect on yield formation which is lower for infections of the upper parts of ears. An exponential model showed high goodness of fit for gradients of infected kernels within ears ($R^2 \geq 70$) except tip infection with *F. culmorum*. This study confirmed that FHB is a function of the primary infection site within ears. Thermography was useful to differentiate among infection scenarios and may be applied in breeding for FHB resistance.[A. Al

Yellow Shoot Disease (or Greening) on Citrus: A Dangerous Disease Threatening Citrus of the Mediterranean Region. In many countries in the world exists a citrus bacterial disease, due to a bacterium from the genus ‘*Candidatus Liberibacter*’, that is very dangerous and hard to control. Even this disease had been known by the name ‘Greening’, this appellation is presently quite abandoned because it does not reflect exactly symptoms caused by the disease. Symptoms that characterize this disease are (1) yellowing of the tree top shoots, (2) appearance of blotched mottle on leaves, and (3) a reverse yellowing of the fruit which started from the fruit basis attached by the petiole and not from its top as when fruit is safely ripening. And since this disease was firstly identified in China, especially by shoot yellowing symptoms, it was called and largely known by its Chinese name “Huang-Long-Bing” (abbreviated as HLB). The disease is caused by the bacterium species ‘*Candidatus Liberibacter africanus*’, ‘*Candidatus Liberibacter asiaticus*’ and ‘*Candidatus Liberibacter americanus*’. These three bacteria (African, Asian and American species) live in the host plant inside the phloem tissue, after their introduction in the plant by two insect species feeding on citrus tree: African citrus psyllid (*Trioza erytreae*) that naturally carries the African bacterium and Asian citrus psyllid (*Diaphorina citri*) that naturally carries the Asian and American bacteria. By looking to the HLB disease dispersal in the world, we find the African bacterium existing in the Eastern cost of Africa continent from South Africa to Ethiopia, and in some areas of Western Africa in Cameroon and Zaire. Regarding the Asian bacterium, it is dispersed in most of the Southern regions of the Asian continent. Unfortunately, both these two species of bacteria are disseminating in the South-West region of the Arabic peninsula (Yemen and Kingdome of Saudi Arabia) and the North of Ethiopia. In the American continent, especially in areas of Florida in USA and some other areas in Brazil, two bacterial species exist which are American and Asian bacteria. With regard to the psyllid vectors of the bacteria, they cover all regions where HLB disease exists, but also in other regions where the disease does not occur yet, among which, the closest one to the Mediterranean region are the Spanish Canary islands (West of Morocco), where the African bacterium was reported since 2002, but the most danger situation presently is the discover of the this vector in August 2014 in the Pontevedra region, then in the Coruna region, both in the Galicia district in the North-West of Spain. Moreover, the insect was also found in January 2015 in the North of Portugal in Porto region from which it spread to the coastal areas of the Northern Portugal. This situation threatens by the dissemination of the disease vector inside whole Spain and Portugal and then to Southern Europe regions as well as North-Africa regions such as it was the case of the fire blight in 2006 and the red palm weevil in 2008 which crossed from Spain to Morocco. [Bouzid Nasraoui, INAT, University of Carthage, Tunis, Tunisia].



Symposium of The insect natural enemies in the integrated pest management IPM 19 -20/9/2016.

In Context of the Scientific Activities of the Biological Control Studies and Researches Centre (BCSRC) in the College of Agriculture at the University of Damascus, a specialized symposium was held on Monday and Tuesday 19 and 20 September 2016 entitled "The insect natural enemies (parasitoids and predators) in the integrated pest management IPM", researchers in the field of biological control from the Syrian universities and centers of propagation natural enemies were participated. The seminar addressed twenty-four researches selected by the scientific committee so that they harmonize the theme of the symposium, focused these researches on: scale insects and their parasitoids, biological and genetic characteristics of the predators and parasitoids, aphids and its' biological control agents. There were some new researches in Syria, such as the identification of ladybugs insects, according to their larval morphology, a research on a predator fly of eggs of larvae of olive fruit fly and the new natural enemies on codling moth and apple stem borer that are recorded for the first time in Syria. The center is looking forward to hold more seminars and workshops as well as the Second National Conference of Biological Control in September 2017, and gladly welcomes the presence and participation of all colleagues.

Postgraduate Arab Students Activities (Master and Doctorate Thesis)

A study of date palm leaflets blight caused by *Diplodia phoenicum* and some fungi associated with it and the ability of its chemical and biological control. [Dergham Sabah. Plant Protection Department, College of Agriculture, University of Basrah, Baghdad- Iraq, (Master 2016)].

Integrated Pest Management of the Tomato Leafminer *Tuta Absoluta* (Meyrick) (Lepidoptera: Gelechiidae) In Balqa Governorate, Jordan. The tomato leafminer, *Tuta absoluta*, is a serious pest of tomato that was introduced into Jordan in 2010. Thus, this study aimed to investigate the susceptibility of three tomato cultivars, the efficacy of three insecticides in controlling the immature stages and in developing an IPM program. Three experiments were conducted in Al-Karamah and Al Baqa' in Al Balqa governorate during 2013 to 2015. The first tested experiment was the susceptibility of Dafnis, Newton and Shams cultivars to *T. absoluta*. The second tested experiment was Avaunt®, Belt® and Phytomax® for controlling the pest on cultivar Dafnis. The third test was the least susceptible cultivar and the most effective insecticide in developing an IPM program and compared it to conventional control. The IPM program used cultivar Dafnis which was the least susceptible cultivar to *T. absoluta* in the two locations. The total number of larvae was the lowest in cultivar Dafnis compared to Newton and Shams (1786, 2252, 2421) in Al Karamah and (1238, 1909, 2029) in Al Baqa. The insecticide Avaunt® was also used which was the most effective insecticide. The total number of larvae was the lowest using Avaunt® compared to Belt®, Phytomax® and control (216, 498, 757, 895) in Al Karamah and (158, 361, 574, 637) in Al Baqa. The yield, infestation % and the number of larvae found in the IPM plastic house were (3135kg, 1.77%, 484 larvae) compared to the conventional plastic house (2480kg, 6.78%, 1422 larvae). This IPM program was found effective in controlling this pest and, therefore, it is recommended for controlling the insect under plastic houses in Jordan. [Ashraf Saber Alhawamdeh, Plant Protection Department, University of Jordan, Jordan (Doctorate, 2016)].

❖ Some Plant Protection Activities of FAO and Other Organizations

DESERT LOCUST SITUATION

Situation level: Caution

General Situation of the Desert Locust during October 2016 and Forecast until mid-December 2016 provided by the FAO Emergency Centre for Desert Locust (ECLO).

As a result of summer breeding, two Desert Locust outbreaks developed during October, one in western Mauritania and one in northern Sudan. In both countries, additional survey teams were immediately mobilized and control operations were launched. It is likely that the Mauritanian outbreak will extend into areas of recent heavy rains in the north of the country as well as in Western Sahara where further breeding is expected. A failure to control the outbreak combined with unusually heavy and widespread rainfall might eventually lead to an upsurge in northwest Africa next spring but this is far from certain. In Sudan, adult groups and perhaps a few small swarms are expected to form and move to winter breeding areas along the Red Sea coast,

especially in northeast Sudan and southeast Egypt where heavy rains fell in late October. Elsewhere, the situation remained calm.

Western Region. An outbreak developed in western Mauritania in early October as a result of widespread egg-laying and hatching by summer-bred gregarizing adults, including a few swarms that may have originated from undetected areas or from northern Mali where insecurity prevents regular surveys. Control operations intensified in Mauritania, treating more than 8,100 ha of hopper and adult groups, and small bands and swarms. Smaller infestations were seen in adjacent areas of Western Sahara in southern Morocco where limited control operations were carried out against adult groups. A new generation of adult groups and small swarms is likely to form from about mid-November onwards in western Mauritania and are likely to move into

Western Sahara and northern Mauritania where good rains fell and further breeding could occur. Scattered adults were present along the southern side of the Atlas Mountains in Morocco and in western Algeria. Control operations were undertaken along the Mali border in southern Algeria against high densities of hoppers. Locust numbers declined in the summer breeding areas of northern Niger and Chad where primarily low numbers of adults persisted.

Central Region. An outbreak developed in North Kordofan and the Baiyuda Desert of northern Sudan as a result of summer breeding and drying conditions. The outbreak may extend east of the Nile Valley. Ground and aerial control operations were immediately mounted, treating nearly 3,000 ha of hopper groups and bands. Some of the hoppers have already fledged and immature adults are forming groups and perhaps a few small swarms that will move to the winter breeding areas along the Red Sea, initially to northeast Sudan and southeast Egypt where good rains will allow adults to mature and lay eggs that should hatch by the end of the forecast period. Breeding was in progress on the southern Red Sea coast of Saudi Arabia where control operations treated 3,400 ha and on the Gulf of Aden coast in southern Yemen. A few adult groups were breeding on the Red Sea coast of Eritrea while locust numbers declined in eastern Ethiopia. During the forecast period, breeding will occur along both sides of the Red Sea as well as in coastal areas of southern Yemen and northwest Somalia if rains occur.

Eastern Region. The situation remained calm in the region during October. No significant developments are likely.

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://desertlocust-crc.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)

Activities of FAO Commission for Controlling the Desert Locust in the Central Region (CRC);

1. The Commission, in cooperation with the Ministry of Agriculture of Ethiopia, organized a national training course for the Maintain and Repair of Spray Equipment used for controlling the Desert Locust during the period 19 to 22 July 2016. 15 trainees from different provinces attended the training course, which included the fundamental procedure to operate the ULV spray equipment and its maintenance .
2. The Commission also, in cooperation with the Ministry of Agriculture of Ethiopia, held a national workshop on Environmental and Health standards (EHS) for Desert Locust Control from 24 to 28 July, 2016 in Debre Zeyit. A total of 19 trainees participated in the workshop. The objective of the workshop was to define the requirements that the Desert Locust control campaign should meet with the aim to minimize environmental and human health effects of insecticide use. The EHS provides explicit benchmarks which Desert Locust control operations should comply with to ensure that environmental and human health effects are avoided or kept to an acceptable minimum.



3. The Commission organized the third regional workshop on Environmental and Health standards (EHS) for Desert Locust Control, during the period 25-29 September 2016 in Hurgada, Egypt. 16 nationally designated EHS officers from Seven member countries in the Central Region; Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia, Sudan and Yemen and one participant from the Desert Locust Control Organization for Eastern Africa (DLCO-EA) participated in the workshop, in addition to a FAO consultant and the CRC secretariat. The workshop's objectives were to review the status of the environmental and health protection measures of the frontline member countries, evaluate the implementation of EHS procedures, assess the current standards and place recommendations for the frontline countries of the Commission



4. The Commission, in cooperation with the Ministry of Climate Change and Environment of the United Arab Emirates organized a national training course on Desert Locust survey and control operations in, Sharjah, during the period 9 to 13 October 2016. In total, 19 participants from different provinces took part in the training course. The program included: Desert Locust biology, survey and control operations and the use of ultra low volume sprayers in Locust control.



WORKSHOP ON INTEGRATED MANAGEMENT OF FRUIT FLIES, FAO, LEBANON 15/10/2016

FAO organized a workshop on integrated management of fruit flies. The Food and Agriculture Organization of the United Nations (FAO) in collaboration with the Lebanese Ministry of Agriculture and the Lebanese Agriculture Research Institute and the branch of contractors and agriculture engineers at the Order of Engineers and Architects in Tripoli organized a workshop on October 15 on the integrated management of fruit flies in Lebanon. This workshop is held under the framework of the technical cooperation project funded by the FAO "Surveillance and management fruit flies in Lebanon", it was held in the conference room at the Order of Engineers and Architects in Tripoli, where more than 100 Agriculture Engineer participated in the workshop. The FAO pointed out that "the objective of the workshop is to raise awareness about the impact of fruit flies on the agricultural sector and the economy, and the techniques adopted to control fruit flies and to achieve their integrated management", pointing out that "This workshop was held under the "Surveillance and management fruit flies in Lebanon" project which aims mainly at creating a national survey and mapping necessary to determine the whereabouts of the fruit fly at the national level and to strengthen national capacity towards establishing the strategy of control. "FAO highlighted that "fruit flies cause serious damage on a lot of fruit and vegetable crops, which represent more than 70% of the cultivated areas in Lebanon. May cause fruit fly huge economic losses for many kinds of agricultural crops through productivity reduced and the quality and therefore the impact on Lebanese fruit exports, if not discovered early and develop an effective strategy to manage it, "asserting that" the main beneficiaries of the project are the farmers of the fruit, and farmers, rural communities, cooperatives, and non-governmental organizations, exporters and government authorities concerned in Lebanon, "FAO has published on its website a booklet prepared in collaboration with the Ministry of Agriculture and the Agricultural Research Institute for the integrated management of fruit flies and the most important types of fruit flies and their hosts in Lebanon.



ARAB SOCIETY FOR PLANT PROTECTION NEWS

Welcome to the 12th International Arab Congress of Plant Protection 5 – 9 November, 2017 Hurghada – Egypt (Towards Future Secure Agricultural Production)

Invitation

The Arab Society for Plant Protection (ASPP) in collaboration with the Agricultural Research Center (ARC), Ministry of Agriculture and Land Reclamation, Egypt, represented by the Plant Protection Research Institute and the Plant Pathology Research Institute, has the pleasure to welcome and invite scientists, researchers, academicians, and those who are involved with various aspects of the field of plant protection of pests from government agencies, universities, research and extension institutions, and international agencies to present and exchange regional expertise of all aspects of plant protection, including recent developments related to integrated pest management strategies.

Congress Topics

1. Economic insect and animal pests, 2. Integrated management of Phytopathogens, 3. Etiology and epidemiology of plant diseases, 4. Natural enemies and their role in pest management, 5. Post-harvest pests, 6. Effect of environmental changes on insect pests, plant pathogens and natural enemies, 7. Date palm pests, 8. Bio-pesticides, 9. Nano-technology for pests and Plant diseases control, 10. Safe use of agrochemicals, 11. Quarantine regulations and phytosanitary measures, 12. Integrated pest management, 13. Genetic engineering and pest control, 14. Integrated control of weeds, 15. Apiculture and Sericulture.

Congress Language

Arabic (Official) for papers presentation and **English** for symposia presentations.

Registration Fees (Hotels NOT included):

Participation Type	Egyptians (US \$) or equivalent	Non-Egyptians (US \$)
ASPP members	100	150
Graduate Students	60	60

- The registration fee covers participation in the congress + the conference publications.
- Graduate students, applying for registration, should present a certificate in support of their current studentship status from their college/university/institution.

Accommodation (Full board in double-bed room):

Participation Type	Egyptians (Egyptian pounds)	Non-Egyptians (US \$)
ASPP members	1100	400
Graduate Students	1100	400
Accompanying persons (No congress fees)	1500	450

Important Dates

Registration	30th January, 2016
Last date for submission of abstracts	31st May, 2017
Second Announcement with accommodation and other details	1st March 2017
Announcement regarding acceptance of abstracts	1st July, 2017



Contacts

ACPP2017 Secretariat: Please contact us if you have any question or suggestion via:

Post Address: 7 Nadi El-Said Street, Dokki, Giza, Egypt.

E-mail: acpp2017@arc.sci.eg

Phone/ Fax: +202-33372193

acpp2017

**Registration Guidelines:**

- On-line registration by uploading the registration form through the congress website www.acpp2017.sci.eg is recommended.
- Registration can also be submitted directly by hand or as an attachment via e-mail to the congress secretariat: acpp2017@arc.sci.eg

Symposia Program- 12th Arab Congress of Plant Protection (12th ACPP) Hurghada, Egypt, 5-9 November 2017

Below please find the complete symposia program (titles of presentations and names of invited speakers) which is part of the 12th Arab Congress of Plant Protection Organized by the Arab Society of Plant Protection (ASPP) in collaboration with the Agriculture Research Center, Ministry of Agriculture and Land Reclamation of Egypt, that will be held in Hurghada, Egypt, 5-9 November 2017.

KEYNOTE ADDRESS IN THE OPENING SESSION OF THE CONGRESS

- **Building bridges between plant protection disciplines for sustainable management of crop pests.** By Dr. Rangaswamy Muniappan, *International Association of Plant Protection sciences (IAPPS), Virginia Tech, USA.*

SYMPOSIUM I. IMPLICATIONS OF DISEASE AND INSECT PEST'S BIOLOGY AND ECOLOGY ON DESIGNING PEST MANAGEMENT STRATEGIES

1. **IPM of soil-borne pests and sustainable food production.** By Dr. Abdelfattah A. Dababat, *CIMMYT, Turkey*
2. **Risk analysis and its impact on prevention and control measures of economically important pests.** By Dr. Martin Ward, *EPPO, France.*
3. **Effects of insect vector movement in developing and deploying integrated disease management strategies for whitefly-transmitted viruses.** By Dr. Judith K. Brown, *University of Arizona, USA.*

SYMPOSIUM II. ADVANCED TECHNOLOGIES AND PLANT PROTECTION

1. **Use of remote sensing and GIS for developing improved crops IPM strategies.** By Dr. Burkhard Golla, *Julius Kuhn-Institut, Germany.*
2. **Development of integrated fine scale systems for informed decision making in sustainable crop protection.** By Dr. Vittorio Rossi, *Universita Cattolica, Italy.*
3. **Overview on novel techniques for sustainable pest management in protected and open field agriculture.** By Dr. J. Meyer, *Bayer AG, Monheim, Germany.*
4. **The use of molecular tools in developing pest resistant crops.** By Dr. Alaadin Hamwiyeh, *ICARDA, Cairo, Egypt*

SYMPOSIUM III. IMPACT OF CLIMATE CHANGE ON PLANT PROTECTION UNDER MEDITERRANEAN AND OASIS CONDITIONS

1. **Climate change and plant health.** By Dr. Jingyuan Xia, *FAO, Rome, Italy.*
2. **Role of Information packages for potential effects of climate change on crop pests dynamics.** By Dr. Mahmoud Medany, *Ministry of Agriculture and Land Reclamation, Egypt.*
3. **Climate change and plant disease management in the Mediterranean region: present status and future needs .** By Dr. Ilaria Pertot, *Edmund Mach Foundation, Italy.*

SYMPOSIUM IV. MANAGEMENT OF NEWLY EMERGING AND SERIOUS PESTS: THE CASE OF OLIVE DECLINE CAUSED BY *XYLELLA FASTIDIOSA*, A THREATENING DISEASE TO OLIVE PRODUCTION IN THE MEDITERRANEAN BASIN

1. **Research progress on *X. fastidiosa*: biology, genetics and control.** By Dr. Giovanni Martelli, University of Bari, Italy.
2. **Experience gained from efforts to contain olive decline in southern Italy and research needs to manage it in the Mediterranean region.** By Dr. Anna Maria D'Onghia and Dr. Thaer Yassin, IAM-B, Italy.
3. **Innovative methods for the fast and efficient detection of pathogens inducing decline of olive trees.** By Dr. Khaled Djelouah, IAM-B, Italy.
4. **The status of *X. fastidiosa* in the Arab region and efforts underway to contain it.** By Mr. Shoki Al-Dobai, FAO-RNE, Cairo, Egypt.

A joint meeting between the Organizing Committee of the 12th Arab Congress of Plant Protection and the Executive Committee of the Arab Society of Plant Protection

On September 26, 2016, a joint meeting was held in Cairo between the Organizing Committee of the 12th Arab Congress of Plant Protection and the Executive Committee of the Arab Society for Plant Protection and chaired by Dr. Mortada Ahmed Eissa, the chairman of the Organizing Committee. In this meeting, all organizational issues related to the congress were discussed and can be summarized as follows:

1. Congress site

It was agreed to hold the 12th ACPP in one of the resorts in Hurghada on the Red Sea, Egypt during the period 4-9 November 2017. The resort name will be announced in the congress second announcement.

2. General Program

After discussing the general program outline, it was agreed that the general congress program looks like this:

- Saturday, November 4, 2017: arrival and registration.
- Sunday, November 5, 2017: Congress opening session + symposium I + paper presentation sessions.
- Monday, November 6, 2017: Symposium II + paper presentation sessions + ASPP general assembly.
- Tuesday, November 7, 2017: Touristic trip to Luxor and surrounding areas.
- Wednesday, November 8, 2017: Symposium III + paper presentation sessions + election of new ASPP executive committee + farewell dinner.
- Thursday, November 9, 2017: Symposium IV + paper presentation sessions + closing

It was also agreed to arrange on Saturday morning November 4, 2017 for participants from Egypt, bus transportation from Cairo to the congress venue in Hurghada. Participants from outside Egypt will be encouraged to book connecting domestic flights from Cairo International airport to Hurghada, as there are many daily flights from Cairo to Hurghada

3. Congress symposia

The congress symposia program prepared by Dr. Khaled Makkouk in collaboration with many colleagues was discussed and approved.

4. The 2nd and 3rd announcements and the deadline for submitting abstracts

It was agreed that the 2nd announcement will be out on March 1, 2017 and the 3rd announcement will be out on August 1, 2017. The deadline for submitting abstracts will be July 1, 2017, and all agreed that the organizing committee should adhere strictly to this date to give enough time to the congress scientific committee to evaluate abstracts and send approval letters to the participants by August 1, 2017, at the latest. This will permit participants to finalize travel arrangements and at the same time permits the scientific committee to prepare and print the abstract book on time, which, similar to previous congresses, will be published as a special issue of the Arab Journal of Plant Protection. Participants from Egypt can publish full articles of their papers (optional) in the research journal of the Agriculture Research Center of Egypt, which will be published after the meeting date.

5. Congress poster

It was agreed that distributing an attractive poster for the congress to all interested research institutions in the Arab world and beyond will publicize further this event and encourage potential participants to join the congress. All agreed to design a congress poster for the congress within a month and distribute electronically, and the ASPP office in Beirut will be in charge in distributing the poster outside Egypt.

6. Partial support to Arab researchers and graduate students to attend the congress, and how to apply for such support

All agreed to the importance of providing partial support, if possible, to participants from different Arab countries who need such support, especially in countries where researchers have low income and also to graduate student to attend the congress. The exact amount to be allocated per participant will be determined at a later date and based on the amount of funds that will be raised for this purpose. This support will be announced in the 2nd announcement on March 1, 2017.

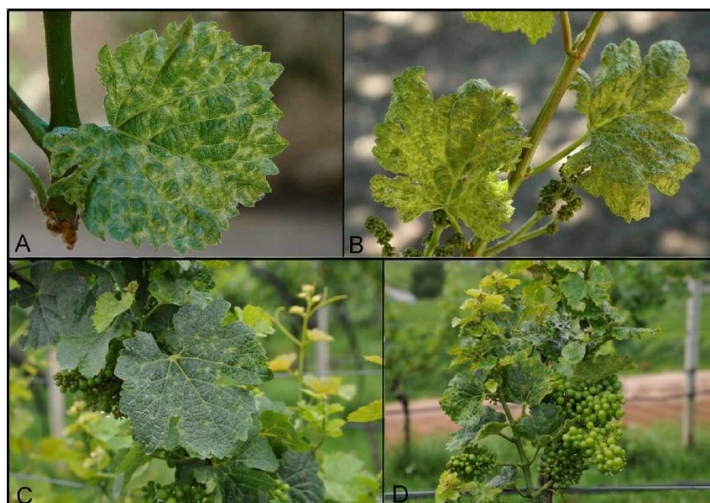
7. Awards to graduate students

To encourage outstanding young scientists to participate in the congress, it was agreed that ten financial and distinction awards will be provided to the top five oral presentations and top five poster presentation given by graduate students from Arab universities. The amount of the award will be determined later and based on the available funds.

GENERAL NEWS

Book Chapter on Mite Pests of Date Palms: The date palm, *Phoenix dactylifera* L., is attacked by several mite species that frequently cause significant damage. The Banks grass mite, *Oligonychus pratensis* (Banks), and the Old World date mite, *Oligonychus afrasiaticus* (McGregor), (Acari: Tetranychidae) are considered major pests of date palms. The spider mite *Eutetranychus palmatus* Attiah (Tetranychidae), the red palm mite, *Raoiella indica* Hirst, and the red and black flat mite, *Brevipalpus phoenicis* (Geijskes), (Acari: Tenuipalpidae) are considered pests of minor importance to date palm. This chapter summarizes the present knowledge about the distribution, host range, damage, biology, seasonal incidence and management practices of these species. Strategies used for mites are centered on the use of chemical pesticides. Often, the extensive use of these products has resulted in secondary pest outbreaks, undermining the adoption of sustainable pest management programs. Alternative management tactics, including biological control, have not been widely adopted by date producers. Therefore, since more research is needed, future research priorities are also discussed. [Mohamed W. Negm (Egypt), Gilberto J. de Moraes (Brazil), and Thomas M. Perring (USA). Springer International Publishing Switzerland, 347-389. 2015; Book title: Sustainable Pest Management in Date Palm: Current Status and Emerging Challenges].

Status of Grapevine Pinot Gris Virus. In 2012, molecular analysis (deep-sequencing) of 2 plants (*V. vinifera* cv. Pinot gris – 1 symptomatic and 1 asymptomatic) led to the identification of a new virus tentatively called Grapevine Pinot gris virus (*Trichovirus*, GPGV). Subsequent studies could also detect the virus in other Northern regions of Italy, as well as in other European countries (Czech Republic, France, Slovakia, Slovenia) and in the Republic of Korea (see EPPO RS 2014/208, 2015/055). Lately the virus was recorded in southern Italy (Morelli *et al.*, 2014) on some table grape (Magic black and supernova). GPGV is worldwide distributed to include Greece, Turkey, Bosnia, Croatia, Romania, Portugal, Serbia, Spain, Ocrania, South Korea, and lately in China and UK (Beuve *et al.*, 2015, Bianchi *et al.*, 2015, Glasa *et al.*, 2014). Finally, GPGV was also detected in Southern Italy during spring 2014. The virus was found in 2 distinct areas of Puglia region in table grapes (*V. vinifera* cvs.



SELECTED RESEARCH PAPERS

- **The neonicotinoids thiacloprid, imidacloprid, and clothianidin affect the immunocompetence of honeybees (*Apis mellifera* L.).** Annely Brandt, Anna Gorenflo, Reinhold Siede, Marina Meixner, Ralph Büchler. *Journal of Insect Physiology*, 86, 40–47, 2016.
- ***Beauveria bassiana* and *Metarhizium anisopliae* endophytically colonize cassava roots following soil drench inoculation** Melinda Greenfield, María I. Gómez-Jiménez, Viviana Ortiz, Fernando E. Vega, Matthew Kramer, Soroush Parsa. *Biological Control*, 95, 40–48, 2016.
- **Insect pathogens as biological control agents: Back to the future.** L.A. Lacey a, D. Grzywacz, D.I. Shapiro-Ilan, R. Frutos, M. Brownbridge, M.S. Goettel, *Journal of Invertebrate Pathology* 132, 1–41, 2015.
- **IRAC: Mode of action classification and insecticide resistance Management.** Thomas C. Sparks, Ralf Nauen. *Pesticide Biochemistry and Physiology* 121, 122–128, 2015.
- **Identification of pathogenicity-related genes in *Fusarium oxysporum* f. sp. *cepae*.** Andrew Taylor, Vikt Oria V Ag_Any, Alison C. Jackson, Richard J. Harrison, Alessandro Rainoni, And John P. Clarkson, *Molecular Plant Pathology*, 17(7): 1032–1047, 2016.
- **Establishment of polyethylene-glycol-mediated protoplast transformation for *Lecanicillium lecanii* and development of virulence-enhanced strains against *Aphis gossypii*.** Yan-Jun Zhang, Ming Xie, Xiao-Lin Zhang, De-Liang Peng, Wen-Bin Yu, Qiang Li, Qian Li, Jin-Jin Zhao, Zhao-Rong Zhang, *Pest Management Science*, 72(10):1951–1958, 2016.
- **Field evaluation of the nematicide fluensulfone for control of the potato cyst nematode *Globodera pallida*.** Patrick M Norshie, Ivan G Grove and Matthew A Back, (wileyonlinelibrary.com) DOI 10.1002/ps.4329, 2016.
- **Bacteria from the citrus phylloplane can disrupt cell–cell signalling in *Xanthomonas citri* and reduce citrus canker disease severity.** J. C. Caicedo, S. Villamizar, M. I. T. Ferro, K. C. Kupper, J. A. Ferro, *Plant Pathology*, 65(5):782–791, 2016.
- **Cellular immune response of the Asian corn borer, *Ostrinia furnacalis* (Lepidoptera: Pyralidae), to infection by the entomopathogenic fungus *Beauveria bassiana*.** Dongxu Shen, Miao Li, Yuan Chu, Minglin Lang and Chunju An. *Eur. J. Entomol.* 113: 415–422, 2016.
- **Predation by *Macrolophus pygmaeus* (Hemiptera: Miridae) on *Acyrtosiphon pisum* (Hemiptera: Aphididae): Influence of prey age/size and predator’s intraspecific interactions.** Juliana Durán Prieto, Vincenzo Trotta, Paolo Fanti, Cristina Castañé and Donatella Battaglia. *Eur. J. Entomol.* 113: 37–43, 2016.
- **Comparison of growth parameters of the predator, *Chrysoperla nipponensis*-B (Neuroptera: Chrysopidae) reared on a diet of eggs of *Corcyra cephalonica* (Lepidoptera: Pyralidae) and an artificial diet containing ginger.** Shafique A. Memon, Dzolkhifli Omar, Rita Muhamad, Ahamd S. Sajap, Norhayu Asib and Arfan A. Gilal. *Eur. J. Entomol.* 113: 387–392, 2016.
- **Effect of seed treatment duration on growth and colonization of *Vicia faba* by endophytic *Beauveria bassiana* and *Metarhizium brunneum*.** Lara R. Jaber Dr., Juerg Enkerli Dr. *Biological Control* 103 :187–195, 2016.
- **A cixiid survey for natural potential vectors of ‘*Candidatus Phytoplasma phoenicium*’ in Lebanon and preliminary transmission trials.** R. Tedeschi, L. Picciau, F. Quaglino, Y. Abou-Jawdah, M. Molino Lova,

M. Jawhari, P. Casati, A. Cominetti, E. Choueiri, H. Abdul-Nour, P.A. Bianco & A. Alma . Annals of Applied Biology 166: 372-388, 2015.

- **First report of cucumber mosaic virus and olive latent ringspot virus on olive trees in Lebanon.** E. Choueiri, A. Freiji, R. Abou Kubaa and T. Elbeaino, Journal of Plant Pathology, 97 (1): 209-222, 2015.
- **First report of *Itersonilia Perplexans* on *Anethum Graveolens* in Italy.** G. Bubici, 97 (1): 209-222, 2015.
- **First, report of two *Phomopsis* species on olive trees in Italy.** S. Frisullo, H.S. Elshafie and S.M. Mang, Journal of Plant Pathology, 97 (2):391-403, 2015.
- **Identification and Molecular Characterization of *Citrus Variegation Virus* in Lebanon.** R. Abou Kubaa, E. Choueiri, M.I. El Khoury⁴ and K. Djelouah, Journal of Plant Pathology, 97 (2):391-403, 2015.
- **Removal of viruses from Lebanese fig varieties using tissue culture and thermotherapy.** Chalak L., Elbeaino T., Elbitar A., Fattal T., Choueiri E., Phytopathologia Mediterranea 54: 531-535, 2015.
- **Effect of seed treatment duration on growth and colonization of *Vicia faba* by endophytic *Beauveria bassiana* and *Metarhizium brunneum*.** Lara R. Jaber Dr., Juerg Enkerli Dr. Biological Control 103 :187-195, 2016.

PAPERS PUBLISHED IN THE ARAB JOURNAL OF PLANT PROTECTION (AJPP) VOLUME 34, ISSUE 2 AUGUST 2016

BIOLOGY, ECOLOGY

Field studies on the black-veined white butterfly, *Aporia crataegi* (L.) infesting almonds in Syria.

A. Shlalo and W. Kassis (SYRIA)

Pages 71-81, <http://dx.doi.org/10.22268/AJPP-034.2.071081>

Biological study of almond butterfly *Aporia crataegi* in central Syria.

A. Shlalo and W. Kassis (SYRIA)

Pages 82-94, <http://dx.doi.org/10.22268/AJPP-034.2.082094>

Influence of host fruit species of medfly *Ceratitis capitata* on the parasitism level of *Aganaspis daci*.

A.Y. Ali, A. Ahmad, J. Ammar and R. Darwish (SYRIA)

Pages 95-97, <http://dx.doi.org/10.22268/AJPP-034.2.095097>

Spatial distribution pattern of red palm weevil (*Rhynchophorus ferrugineus* Oliv.) in date palm plantations in the Kingdom of Bahrain.

A.A. Asfour, A.A. Abdelkarim, A.A. Saleh and A. Al-Ajami (KINGDOM OF BAHRAIN & SULTANATE OF OMAN)

Pages 98-105, <http://dx.doi.org/10.22268/AJPP-034.2.098105>

SURVEY

Detection of *Polymyxa betae* using scanning electron microscopy and soil borne viruses in sugar beet by multiplex RT-PCR in Syria and Lebanon.

A.M. Mouhanna, L.S. Dibeh and E. Choueiri (SYRIA & LEBANON)

Pages 106-113, <http://dx.doi.org/10.22268/AJPP-034.2.106113>

BIOLOGICAL CONTROL

Entomopathogenic viruses: a general review.

A. Basheer, G. Mouhammad, A. Khadam and M. Al-Salahi (SYRIA)

Pages 114-125, <http://dx.doi.org/10.22268/AJPP-034.2.114125>

Effect of recurrent release of *Trichogramma cacocae* Maeshal on the population of codling moth *Cydia pomonella* (L.) at the district of Sweida, Syria.

M. Bou-Faour, S. Rashid, F. Abou-Ammar and H. Abou Shdid (SYRIA)

Pages 126-134, <http://dx.doi.org/10.22268/AJPP-034.2.126134>

Effect of *Rhizobium leguminosarum* on growth of *Fusarium oxysporum* f.sp. *lycopersici* in vitro.

S. Al-Maghribi, Y. Hammad and B. Rezk (SYRIA)

Pages 135-141, <http://dx.doi.org/10.22268/AJPP-034.2.135141>

TOXINS

Detection of aflatoxin contamination in different Aleppo pistachio genotypes using methanol-water method HPLC.

N.M. Al-Hajjar and B.M. Muzher (SYRIA)

Pages 142-147, <http://dx.doi.org/10.22268/AJPP-034.2.142147>

Evaluation of some physical means efficiency in degrading Aflatoxin B₁ in some dry fruits.

A.A. Al-Haddad, H.Z. Hussain and M.A. Fayyadh (IRAQ)

Pages 148-155, <http://dx.doi.org/10.22268/AJPP-034.2.148155>

PAPERS, WHICH WILL BE PUBLISHED IN THE ARAB JOURNAL OF PLANT PROTECTION (AJPP), VOLUME 34, ISSUE 3, DECEMBER 2016

- **Survey of fruit fly species and their associated parasitoids on some Asteraceae weeds in southern Syria.** Abdel-Nabi Bashir, Louay Aslan, Ghassan Ibrahim and Faek Abdel-Razzak (SYRIA).
- **Relative densities of the parasitoids and predators associated with the olive fruit fly *Bactrocera oleae* (Gmelin) at Khan-Arnaba, El-Qunitera, Syria.** Abdel-Nabi Bashir, Louay Aslan and Faek Abdel-Razzak (SYRIA).
- **Survey and Identification of leaf miner species (Agromyzidae) on some Plants in Baghdad.** R.F. Al-Jassany, I.M. Al-Mallo and R.K. Al-Jaboory (IRAQ).
- **A preliminary study of honey bee paralysis virus in some provinces of Syria.** A.M. Mouhanna (SYRIA).
- **A review of honeybee viruses prevalent worldwide: part II.** H.S. Barhoom, H. A. El-Roz and A.M. Mouhanna.
- **Morphological description of the onion bug *Dionconotus neglectus neglectus* (Fabricius, 1798) (Hemiptera: Miridae) and its host plants in Syria.** Yassin Ali Ali (SYRIA).
- **Survey of phytophagous mites and their predators on natural vegetation in lemon orchards in Latakia governorate, Syria.** Safaa Qurhaily, Ziad Barbar and Louay Hafez Aslan (SYRIA).
- **The economic viability of integrated weed management in onion (*Allium cepa* L.) in Yemen.** Abbas A. Bawazir and Omar S. Bin Shuaib (YEMEN).
- **Effect of mycorrhiza in inducing systemic resistance of tomato against *Pythium ultimum* through activation of methyl jasmonic hormone.** Mohamad Emad Khreibeh, Ibtisam Ghazal, Mohamad Fawaz Azmeh and Wafaa Shuman (SYRIA).

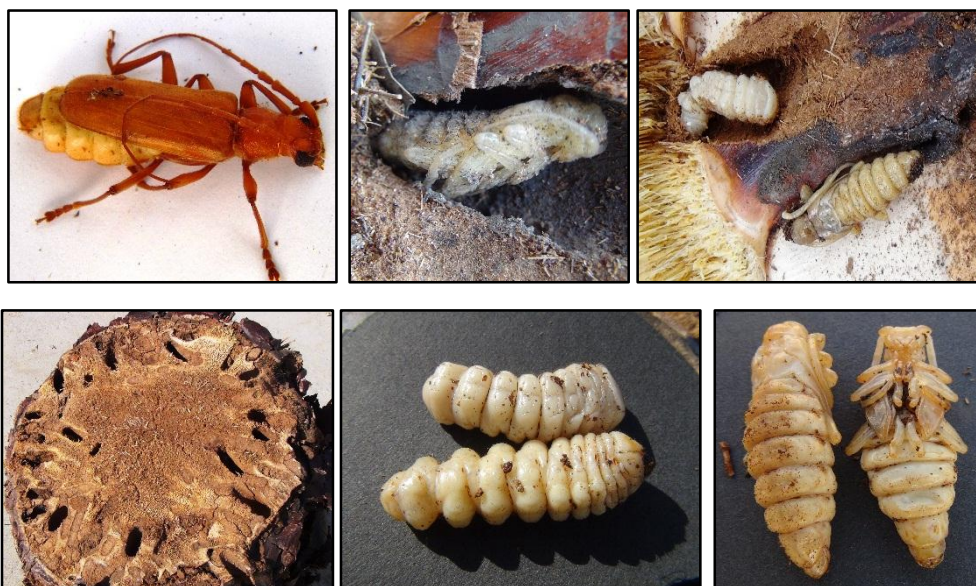
EVENTS OF INTEREST

2016 - 2018

6-9 October, 2016	7 th International Scientific Agriculture Symposium “Agrosym 2016” Jahorina, Bosnia and Herzegovina. www.agrosym.rs.ba
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 www.cavm.qu.edu.sa/en/ICDP2016/Pages/Home1.aspx
10-15 October, 2016	3 rd African Congress for conservation Biology.(Conservation Biology in Africa: Challenges of Globalization) Faculty of Science El Jadida – Morocco. www.fs.ucd.ac.ma/accb2016
19 - 22 October, 2016	6th European Congress of Virology Congress Center Hamburg, Germany. www.eurovirology2016.eu/
14-18 November, 2016	9 th Australasian Soil-borne Diseases Symposium Heritage Hanmer Springs, Canterbury, New Zealand. www.appsnet.org/Interest_Groups/ASDS/asds.aspx
16 - 19 November, 2016	The 8th International Zoological Congress of "Grigore Antipa" Museum, Bucharest – Romania. www.czga.ro
2-3 December, 2016	17th International Scientific Conference on Agricultural, Animal and Veterinary Research , Hong Kong , http://scihost.org/?ic=details&id=43
10-12 December, 2016	3 rd International Symposium on Coconut Research and Development, ISOCRAD 3, ICAR-CPCRI Kasaragod, Kerala, India.
18-21 December, 2016	13th International Conference on “Future Horizon of Sustainable Environmental Development In Arab Countries and Facing the Challenges” Sharm El-Sheikh.
10-12 January, 2017	International conference on <i>Biodiversity, Climate Change Assessment and Impacts on Livelihood</i> Kathmandu, Nepal. http://climdev17.org/
13-14 March, 2017	1th International Conference “Integrated Protection of Date Palms” Manama, Kingdom of Bahrain.
27-29 March, 2017	International conference of “Advanced Technologies and There Applications in Agriculture”. National Research Center, Agricultural & Biological Research and division. Cairo-Egypt. http://agricultural-nrc.org/new/
26-29 June, 2017	The 3rd International Conference on Agricultural and Biological Sciences (ABS 2017), in Qingdao, Shandong Province, China. http://www.absconf.org/index.html
11-15 September, 2017	The 5th International Symposium on Biological Control of Arthropods, Langkawi, Malaysia. http://www.isbca-2017.org
12-15 September, 2017	Asian Conference on Plant Pathology 2017 Jeju Island, South Korea. acpp2017.org/
25-27 September 2017	The 21st Australasian Plant Pathology Society conference., Brisbane, Queensland, www.apps2017.com.au/
5-9 November, 2017	12 th Arab Congress of Plant Protection, ACPP 2017, Hurghada, Egypt. www.acpp2017.sci.eg
19 -22 March , 2018	The Ninth International Integrated Pest Management (IPM) Symposium, Baltimore, Maryland USA. https://ipmsymposium.org/2015/
29 July – 03 Aug, 2018	11th International Congress of Plant Pathology (ICPP2018), Boston, Massachusetts, USA. www.icpp2018.org

SELECTED PESTS FROM ARAB AND NEAR EAST COUNTRIES

Larva pupa, Female of longhorned date palm borers
Jebusea hammersmidtii Reich (= *Pseudophilus testaceus* Gah)
 (Cerambycidae: Coleoptera)



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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.