ARAB AND NEAR EAST PLANT PROTECTION NEWSLETTER

Number 65, August 2015

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Contents

EDITORIAL

Can Plant Microbiome Improve Farming: A Real Challenge to Researchers

In medicine, it is well established that there is a correlation between the millions of microbes that live within our body and human health. Studies showed that a healthy population of bacteria (microbiome) in a person can prevent food allergies and even treat depression. Likewise, these tiny organisms can play a beneficial role in plant health. Growth-promoting bacteria or fungi can be added to plants or soil in a variety of ways—in seed coats, suspended in water and sprayed on plants or soil, or mixed into mulches that are added to the soil or placed around plants. These beneficial microorganisms studied for many decades, are now attracting more attention from researchers looking for approaches that are kind to the environment.

The approach is not new. Romans used to grow plants that form associations with nitrogen-fixing bacteria (clover, alfalfa) in crop rotations to improve soil fertility. They did not know why the clover or alfalfa plants helped to improve the growth of other crops grown in the soil, but we now know that these plants can enhance levels of nitrogen in the soil, via the activity of nitrogen-fixing bacteria.

Free-living microbes, known collectively as endophytes, can suppress plant pathogens or other harmful organisms. Endophytes can also assist plant growth directly by regulating plant hormones, activating plant immune responses and providing the plant with additional nutrients. Understanding microbial communities in crops can reduce the amount of pesticides used or make plants drought-resistant. However, we should keep in mind that many microbes can prove to have plant-beneficial effects under controlled conditions, but it is not necessary that they will do the same under field conditions. Finding microbes that can consistently produce significant positive growth responses under highly variable field conditions remains a challenge. For more information on this topic, readers are referred to the article by Elizabeth Bent entitled "Understanding Plant Microbiome Can Improve Farming and Plant Health" published on January 23, 2015 on "The Conversation" online site (http://www.theconversation.com/au).

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INVASIVE AND NEW PESTS

SAUDI ARABIA

Eriophyoid mites (Prostigmata: Eriophyoidea) associated with date palms: new record and a new species of the genus *Acaphyllisa* from Saudi Arabia. *Acaphyllisa arabica* sp.nov. (Prostigmata: Eriophyidae) is described and illustrated. It is the first species of the genus *Acaphyllisa* Keifer recorded on date palms.*Acaphyllisa* and *Mackiella phoenicis* Keifer are reported for the first time in Saudi Arabia. [J.A. Fahad, M. Kamran and C.H.W. Flechtmann (Saudi Arabia). International Journal of Acarology, 40(4): 353-357, 2014].

First report of *Tomato spotted wilt virus* in lettuce crops in Saudi Arabia. A survey for viruses in open field lettuce crops was carried out in March 2014 in the Al-Uyaynah area, central region of Saudi Arabia. In one plot, more than 50% of the lettuces (hybrid Romaine), with the majority of the affected plants in the edges of the plot, showed virus-like symptoms such as necrotic lesions, necrosis of the lamina of the younger leaves and leaf curling. Most of the infected plants were dead when the field was visited again after 3 weeks. The causal pathogen was identified as Tomato spotted wilt virus (TSWV) based on genetic (ELISA, PCR and RT-PCR) and pathogenicity analyses. This is thought to be the first report of TSWV naturally infecting lettuce in Saudi Arabia. [M.A. Al-Saleh, I.M. Al-Shahwan, M.A. Amer, M.T. Shakeel, M.H. Ahmad, A. Kamran, C.E. Efthimiou and N.I. Katis (Saudi Arabia). Plant Disease, 98(11): 1591, 2014].

SYRIA

***Gynaikothrips uzeli* (Thysanoptera: Phlaeothripidae), new record from Tartous, Syria.** The weeping fig thrips *Gynaikothrips uzeli* Zimmermann (Thysanoptera: Phlaeothripidae) is newly recorded for the first time in the leaf galls of the weeping fig tree *Ficus benjamina* L. (Rosales: Moraceae) in the coastal area of Tartous, Syria. The thrips caused purplish red spots on the leaf surface of the host plant and the leaves curl. *G. uzeli*appears to be successfully adapted to this area. [Ali Yaseen Ali (Syria). Journal of Insect Science, 14(273): 2014].

Occurrence of *Pachycrepoideus vindemmiae* (Hymenoptera: Pteromalidae) as a parasitoid of *Ceratitis capitata* pupae (Diptera: Tiphritidae) in Syria. The Mediterranean fruit fly *Ceratitis capitata* is an economically important pest in citrus cultures. A survey of Hymenopteran parasitoids attacking *C. capitata* pupae was conducted during May and June 2014 in grapefruit and Valencia orange orchards in Tartous, Syria. Two species of parasitoid wasps emerged from host pupae, namely*Aganaspis daci* (Hymenoptera: Figitidae) and *Pachycrepoideus vindemmiae* (Hymenoptera: Pteromalidae). *P. vindemmiae* is recorded for the first time for Syria. Overall parasitism was 4% and 31% in Valencia orange and grapefruit, respectively. Further studies are now required to evaluate their potential for *C. capitata* population suppression and biological control. [Ali Yassen Ali, Matthias Schöller (Syria & Germany), Internat. Entomol. Ver. Band 39. Heft 3/4. 171-178, 2014].

TUNISIA

Establishment of fungal entomopathogens *Beauveria bassiana* and *Bionectria ochroleuca* (Ascomycota: Hypocreales) as endophytes on artichoke *Cynara scolymus.* Entomopathogenic fungi (EPF) are commonly found in diverse habitats and are known to cause mycoses in many different taxa of arthropods. Various unexpected roles have been recently reported for fungal entomopathogens, including their presence as fungal endophytes, plant disease antagonists, rhizosphere colonizers and plant growth promoting fungi. In Tunisia, a wide range of indigenous EPF isolates from different species, such as *Beauveria bassiana* and *Bionectria ochroleuca*, were found to occur in the soil, and to be pathogenic against the artichoke aphid Capitophorus *elaeagni* (Hemiptera: Aphididae). Since endophytic fungi are recently regarded as plant-defending mutualists and their presence in internal plant tissue has been discussed as an adaptive protection against insects, we were interested on elucidating the possible endophytic behavior of *B. bassiana* and *B. ochroleuca* on artichoke, *Cynara scolymus*, after foliar spraying technique. The leaf spray inoculation method was effective in introducing the inoculated fungi into the plant tissues and showed, then, an endophytic activity on artichoke even 10 days later. According S–N–K test, there was significant differences between the two fungal treatments, *B. ochroleuca* (84% a) and *B. bassiana* (78% a), and controls (0% b). Likewise, the inoculated entomopathogenic fungi were also isolated from new leaves even though with significant differences respectively between controls (0% c), *B. bassiana* (56% b) and *B. ochroleuca* (78% a). These results reveals significant new data on the interaction of inoculated fungi with artichoke plant as ecological roles that can be exploited for the protection of plants. [Jouda Guesmi-Jouini, Immnaculada Garrido-Jurado, Christina López-Díaz, Monia Ben Halima-Kamel,

Enrique Quesada-Moraga (Tunisia). Journal of Invertebrate Pathology, 119: 1–4, 2014].

First report of *Corythauma ayyari* (Drake) (Hemiptera: Tingidae) on Arabian and Spanish jasmine in Tunisia. The first signs of the presence of *C. ayyari* were noticed on a plant of *J. grandiflorum* in October 2013 in the locality of M'saken. This plant showed desiccation of the foliage and low flower production. In 2014, the same plant was inspected and the first signs of infestation were seen in August 2014. By November 2014, a large part of the plant was brown and desiccated with a significant decrease in flower production. Following this first detection, the presence of *C. ayyari* was also observed during 2014 at 3 other locations (Ariana, Akouda and Kantaoui) on *J. grandiflorum* and *J. sambac*. In these other locations, no major impacts on flower production were noticed. However, considering the particular importance of jasmine in the Tunisian culture, it is considered that this invasive insect could potentially be a threat to the production of *J. grandiflorum* and *J. sambac* in Tunisia [D. Haouas, E. Guilbert and M. Ben Halima-Kamel (Tunisian). Bulletin OEPP/EPPO Bulletin, 45(1): 144-147, 2015].

First records of two mealybugs, *Maconellicoccus hirsutus* (Green) and *Phenacoccus peruvianus* Granara de Willink, in Tunisia and the North of Africa. In 2014, two mealybugs, *Maconellicoccus hirsutus* (EPPO A2 List) and *Phenacoccus peruvianus* (both Hemiptera: Pseudococcidae) were observed for the first time in Tunisia. The first specimens of *M. hirsutus* were collected during July and August from *Hibiscus rosa-sinensis* in different localities of Sousse governorate (Akouda, Chott Mariem, and Port Kantaoui). Considering the number of attacked plants (e.g. 40 hibiscus plants at Port Kantaoui spread over a 2-4 km² area), it is concluded that the pest is well established. The situation of *Maconellicoccus hirsutus* in Tunisia can be described as follows: Present, first found in 2014 in Sousse governorate**.** *P. peruvianus*, the bougainvillea mealybug, is an invasive species, which is currently spreading around the Mediterranean Basin. In Tunisia, it was collected on *Bougainvillea glabra* and *Citharexylum quadrangularis* in several locations of Sousse governorate (Akouda, Sousse and Port Kantaoui) during summer 2014. [M. Ben Halima-Kamel, J.F. Germain and F. Mdellel (Tunisia). Bulletin OEPP/EPPO Bulletin 45(1):139–143, 2015].

IRAN

Isolation and pathogenicity of *Xylella fastidiosa* from grapevine and almond in Iran. Symptoms similar to those of Pierce's disease of grapevine and leaf scorch of almond were observed in vineyards and almond orchards in several provinces of Iran. Grafting of scions from symptomatic almond trees onto seedlings of a local almond (cv. Mamaee) under greenhouse conditions resulted in the transmission of the leaf scorch agent. A number of symptomatic samples from orchard and greenhouse plants were positive for the presence of *Xylella fastidiosa* when tested by DAS-ELISA and PCR with *X. fastidiosa* specific antibodies and primers. A gram negative bacterium similar to *X. fastidiosa* was isolated on "periwinkle wilt" medium. Selected isolates induced symptoms similar to those caused by *X. fastidiosa* when inoculated on *Nicotiana tabacum*, seedlings of almonds and grapevine under greenhouse conditions. DAS-ELISA and PCR confirmed the identity of the isolated bacteria. On the basis of disease symptoms, graft transmission, isolation on specific *X. fastidiosa* culture medium, pathogenicity tests and positive reactions in DAS-ELISA and PCR, *X. fastidiosa* is associated with almond leaf scorch and Pierce's disease in grapevine in Iran. This is the first report on the presence of *X. fastidiosa* in the Middle East and western Asia. [Naser Amanifar, Mohsen Taghavi, Karamat Izadpanah and Ghobad Babaei (Iran). Phytopathologia Mediterranea, 53: 318-327, 2014].

RESEARCH HIGHLIGHTS

ALGERIA

Antioxydant and insecticidal activity of Algerian *Myrtus Communis* L. extracts. This study was designed to examine the antioxidant and insecticidal activity of the essential oils and methanolic extracts of *M. communis* grown in three different areas of Algeria. Myrtle leaf was the valuable organ for the essential oil production representing a yield between 0.33 and 0.41 % (w/w). Leaves methanol extract was analyzed in terms of the dosage in total phenolic and flavonoids contents. Gallic acid equivalent representing total phenolic constituents of methanolic extracts were 78.79, 75 and 83.03 mg GAE/g; and Quercetin equivalent representing total flavonoids were 21.61, 16.81 and 17.42 mg QE/g of myrtle from Tizi Ouzou, Hamam Melouan and Tablat respectively. Antioxidant activity of the essential oil and the methanolic extract from different myrtles were evaluated by using DPPH radical scavenging, methanolic extracts of different myrtle showed better antioxidant activity than essential oils. The samples were tested for their insecticidal activity against adults of *S.oryzae (L.)* and *T. confusum (Duv)*, using direct contact application and fumigation methods. [Iazzourene Ghania, Mouhouche Fazia and Hazzit Mohamed (Algeria). International Journal of Agricultural Science and Researchm 4(6): 193-202, 2015].

Formulation of the endophytic fungus *Cladosporium oxysporum* Berk. & M.A. Curtis, isolated from *Euphorbia bupleuroides* subsp.

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

EGYPT

Evaluation of non-traditional approaches for controlling tomato moth, *Tuta absoluta* Meyrick (Lepidoptera, Gelechiidae), a new invasive pest in Egypt. Field studies were conducted in 2013 to determine the effectiveness of several treatments in controlling*Tuta absoluta* Meyrick and the impact of this control on the occurrence of other pests on tomato. The tested materials were microbial agent, *Bacillus thuringiensis* L., pure neem seed oil, fogging system and plastic mulches. The experiments were designed as randomised complete block with five replications per each treatment. Trials were evaluated on a two-week basis. Results obtained show that there is significant effect recorded between most of the treatments. Fogging system and tunnels are the best methods mainly because of the best overall performance on the tomato leaf miner. [S.A. Salem and A.S.H. Abdel-Moniem (Egypt), Archives of Phytopathology and Plant Protection, 48(1): 319-326, 2015].

Management of root-knot nematode *Meloidogyne javanica* on tomato by dry crushed pomegranate *Punica granatum* L. peels as a bio-fumigant in Egypt. Dry crushed pomegranate peels, *Punica granatum* L. (Punicaceae), were incorporated into the soil as a bio-fumigant at three different rates, i.e. 3.0, 6.0 and 12.0 g/pot, 14 days before transplanting tomato cv. Super Strain B. Also, 6.0 g of crushed peels was mixed with the soil at three different intervals times as follows: at transplanting time, 7 and 14 days before the transplanting process for controlling the root-knot nematode, *Meloidogyne javanica*, under greenhouse conditions 30 ± 5 °C in Egypt. Results revealed that adding different rates of dry crushed pomegranate peels significantly ($p \leq 0.05$) affected the nematode parameters. The higher rate of peels residue attained higher percentage of nematode reduction. Using a moderate rate (6.0 g/pot) of crushed pomegranate peels decreased nematode criteria based on the intervals times at which the peels were added before transplanting. A negative relationship was found between the time of the tested substance addition and the percentage of nematode reduction. In addition, tomato growth parameters improved according to the evaluated rates and the times at which the peels were added. [A.E. Ismail (Egypt). Archives of Phytopathology and Plant Protection, 48(1): 253-258, 2015].

Role of challenger pesticide and plant extracts on some physiological parameters of the cotton leafworm, *Spodoptera littoralis* (Boisd.). Fourth instar larvae of cotton leafworm, *Spodoptera littoralis* (Boisd.), fed on castor bean leaves treated with sub-lethal concentrations of both alcohol and hexane extracts of Egyptian conyza and Challenger 36% SC insecticide as well to study their effects on mortality, food consumption and utilisation of food. The tested insecticides exhibited relatively high mortality in alcoholic extract of Egyptian conyza (5.0% concentration) followed by Challenger (1.0% concentration). Results showed a slight reduction in the consumption index for larvae treated with both alcoholic extract and Challenger at low concentrations, while hexane extract (5%) recorded significant increase. The approximate digestibility (AD) was reduced in all treatments of alcoholic extract and the relative growth rate insignificantly decreased at 5% concentration, whereas AD increased for larvae fed on Challenger 0.25% concentration. The lower concentration of alcoholic extract of conyza and all treatments of Challenger pesticides induced insignificant decrease in the efficiency of conversion of the ingested food, while hexane extract exhibited insignificant increase. Challenger at all tested concentrations achieved insignificant decrease in the efficiency of the conversion of digested food with respect to the control. [A.R. Ebeid, E.A. Sammour and Nawal Zohdy M. Zohdy (Egypt). Archives of Phytopathology and Plant Protection, 48(1): 385-392, 2015].

IRAN

A laboratory and field condition comparison of life table parameters of *Aphis gossypii* Glover (Hemiptera: Aphididae). Life table studies are essential tools for understanding population dynamics. The life table parameters of *Aphis gossypii* Glover (Hemiptera: Aphididae) feeding on the host plant, *Hibiscus syriacus* L. were studied under laboratory (25±1°C and relative humidity of 65±5% and a photoperiod of 16L : 8D h) and field conditions (23–43°C, and relative humidity of 27–95%). The data were analysed using the age-stage, two-sex life table theory. The life table studies were started with 50 and 40 nymphs in laboratory and field conditions, respectively.

Under laboratory conditions, *A. gossypii* reared on *H. syriacus* had a higher survival rate, fecundity, and longevity than those reared under field conditions. When reared under field conditions, *A. gossypii* had a longer nymphal developmental time, shorter adult longevity, and lower fecundity than those reared under laboratory conditions. The intrinsic rate of increase (*r*), net reproductive rate (*R*0), and the finite rate of increase (*λ*) under laboratory conditions, were higher than those obtained under field conditions. Nevertheless, there were no significant differences in the mean generation time *T* (days) between field and laboratory conditions. In the present study, the results clearly showed that life table parameters of *A. gossypii* were significantly different under field and laboratory conditions. These results could help us to understand the *A. gossypii* population dynamics under field conditions. The results could also help us make better management decisions for economically important crops. [Behnaz Hosseini-Tabesh, Ahad Sahragard and Azadeh Karimi-Malati (Iran), Journal of Plant Protection Research, 55(1): 1-7, 2015].

Anti-fungal properties of 43 plant species against *Alternaria solani* and *Botrytis cinerea.* Investigation of plants containing natural anti-microbial metabolites for plant protection has been identified as a desirable method of disease control. Crude methanolic extracts of 43 plant species belonging to 27 families, which most of them are medicinal plants, mostly collected from the west of Iran were screened for anti-fungal activity against two economically important phytopathogenic fungi, *Alternaria solani* and *Botrytis cinerea* during 2010–2012. Bioassay of the extracts was conducted by agar diffusion method on agar plate cultures with five replications. Among all the 43 plant methanolic extracts, mycelia growth of *A. solani* and *B. cinerea* was reduced by 28 (65%) and 30 (70%) plant extracts when compared to the control, respectively. The strongest extracts with more than 50% inhibition against *A. solani* were *Elaeagnus angustifolia*, *Dodonaea viscosa*, *Haplophyllum perforatum* and inflorescence of *Allium hirtifolium*, respectively. Leaves of *A. hirtifolium*, *H. perforatum*, inflorescence of *A. hirtifolium* and *D. viscosa* showed highest inhibitory effect (≥50%) against *B. cinerea*. Moreover, complete inhibition of leaves of *A. hirtifolium* against *B. cinerea* was due to their fungistatic activity. The results of this experiment and high number of plants with anti-fungal activity showed that the flora in the west of Iran could be regarded as a rich source of plants with anti-fungal activity. Therefore, further screening of other plant species, identifying active fractions or metabolites and *in vivo* application of active extracts are warranted. [Sohbat Bahraminejad, Reza Amiri and Saeed Abbasi (Iran). Archives of Phytopathology and Plant Protection, 48(1):336-344, 2015].

***Eucalyptus dundasii* Maiden essential oil, chemical composition and insecticidal values against *Rhyzopertha dominica* (F.) and *Oryzaephilus surinamensis* (L.)** The insecticidal effects of *Eucalyptus dundasii* Maiden essential oil was studied on the adults of the lesser grain borer, *Rhyzopertha dominica* (F.), and the saw-toothed grain beetle, *Oryzaephilus surinamensis* (L.). Essential oil was obtained by the hydro-distillation method and essential oil composition was analysed by GC-MS. Chemical analysis indicated that 1,8-cineole (54.15%), *p*-cymene (12.41%), *α*-thujene (11.37%), and E-caryophyllene (6.7%) were major constituents. For *R. dominica* and *O. surinamensis*, the LC50 of *E. dundasii* essential oil was 41.69 and 57.92 μl · l–1 of air, respectively. Increasing the concentration of the essential oil and the exposure time, increased mortality. The durability of fumigant toxicity on *O. surinamensis* adults was higher than on *R. dominica* adults and was statistically different. Based on the mean of the repellent indexes and the standard deviation, *E. dundasii* essence was repellent for both insects at 70, 140, and 280-μl · l–1 of air concentrations. Statistical analysis showed that Relative Growth Rate (RGR) in *O. surinamensis* was higher than in *R. dominica*, and the Relative Consumption Rate (RCR), the Efficiency of Conversion of Ingested food (ECI), and the Feeding Deterrence Index (FDI) in *O. surinamensis* was lower than in *R. dominica*. The many diverse bio-effects of *E. dundasii* essential oil confirmed that it is a good candidate for management of *R. dominica* and *O. surinamensis*. [Shiva Parsia Aref, Oruj Valizadegan, Mohammad Ebrahim Farashiani (Iran)**.** Journal of Plant Protection Research, 55(1): 35-41, 2015].

Identification of *Soybean mosaic virus* and *Zucchini yellow mosaic virus* isolated from Iran and phylogenetic comparison with other isolates. As the important resource in human nutrition, vegetables are susceptible to several viruses. *Potyvirus* as the most important genus in the family Potyviridae causes severe crop yield reduction. We tried to detect a genomic fragment, amplified by RT-PCR by use of the *Potyvirus* degenerate primers (NIb2F/NIb3A), from samples of vegetables in East Azerbaijan. A pTZ57R/T vector was prepared by adding thymine nucleotide to the free 5′ end of the linear plasmid, to clone the fragments. Recombinant plasmids were transformed in *Escherichia coli* as a prokaryotic host. To investigate the identity of genomic fragments, sequencing was carried out and finally, some genomic segments were investigated to be SMV and ZYMV that are membranes of *Potyvirus* genus. This is the first report of ZYMV from this region of Iran based on RT-PCR detection and SMV is sequenced for first time from Iran. Finally, phylogenetic comparison with other isolates was carried out for these two isolate of *Potyvirus* genus. [N. Masoudi and A. Rostami (Iran). Archives of Phytopathology and Plant Protection, 48(1): 111-119, 2015].

Study on laser perforated films as gas permeable packaging for confused flour beetle (*Tribolium confusum* Jacquelin du Val.) control inside food

packaging. Storage insect pests are a major threat for packaged foodstuffs and most packages have low permeability to the fumigant gases used for control. In this study, the effects of O_3 gas concentrations (50, 100, 150 ppm) in the atmosphere of 70% CO_2 on adults of Confused flour beetle placed inside three foodstuffs including; wheat (alive), wheat flour and rolled oats (inanimate) packed with laser perforated BOPP film with 80 µ width, were evaluated. The experiments performed at 25 ± 2 °C and 35 ± 5% r.h. with exposure period seven days. The results showed that the regression models between permeability index (PI) of Bopp film and insect mortality in three different foodstuffs and empty packages were different. Regression model for packaged wheat was quadratic, for wheat flour and rolled oats was power and in empty packages, linear model was fitted with 95% confidence. The additive effect between O_3 and CO_2gases on pest mortality placed in empty non-perforated film was found. Other results proved that the mean mortality in three products in the same condition is different and highest mortality was observed in wheat. Also, the interactions observed between factors at 0.05 level. Present study suggests laser perforated BOPP films as a proper packaging for inanimate products and non-perforated BOPP films for live products. [Mohammad Nateq Golestan, Youbert Ghosta, Ali Asghr Pourmirza, Orouj Valizadegan (Iran). Journal of Stored Products Research, 60: 54-59, 2015]**.**

IRAQ

Effects of Ph and Ecw on growth and sporulation of indigenous *Tricoderma* spp. The influence of three levels of pH and degrees of ECw on the radial growth and sporulation of 34 local isolates of *Trichoderma* spp. were evaluated under laboratory conditions. The pH used were 4,6 and 8 while, the ECw were 12.92, 14.30 and 17.8 Siemens per meter (ds/m) respectively. The data obtained showed that pH 6 was the optimum degree of growth parameters while pH 8 showed significant reduction ($p< 0.05$) in the growth parameters compared to pH 4. The results also revealed that ECw 17.8 ds/m significantly reduced ($p< 0.05$) the growth parameters compared to ECw 12.92 and 14.30 ds/m. Thus, the results obtained elucidated the importance of reduction in biocontrol activity of fungus in saline-alkali soil. [Hamdia Z. Ali, Hadi M. Aboud, Naeem S. Dheyab., Nibal K. Musa, Fatimah H. Gasam (Iraq). International Journal Phytopathology, 4(1):15-20, 2015].

Effect of plant physiology age on induced systemic resistance in tomato agent root knot nematodes by chemical inducers. This study was conducted to examin the effect of plant age on induction of resistance by, β-aminobutyric acid (BABA), Acibenzolar-S-methyl (BION), in tomato against root knot nematodes, *Meloidogyne* spp. by various application methods. The resistance was manifested by reduced root penetration of second stage juveniles (j2) and lowered root knot gall index (gi) of treated plants. BABA treatment at plant age of 2-4 true leaves was significantly superior at the concentration of 40 mM for 4h by less number, 76 j2 penetrating roots compared with 549 j2 in the roots of treated control plants. At 6-7 true leaves, 50 mM for one hour significantly outperformed with, 33.3 j2 compared with the 527.7 j2 in control plants. At the age of 2-4 true leaves treated with 40 mM for 4h recorded 5.3gi compared to the control 10 gi. The age of 6-7 true leaves with a concentration of 50 mM for one hour recorded of 2 gi compared with the control which recorded 9 gi. Increased plant resistance to nematodes was more apparent as the concentration of BABA was increased. BION was significantly better in inducing resistance to the nematodes at 50 mgL^{-1} for 3h when 2-4 true leaves age plants were treated as indicated, 117 j2 penetrated roots compared with 459.2 j2 in control plants. At 6-7 true leaves with 50 mgL^{-1} for 3h caused significantly less, 62.3 j2 penetrated the roots compared with 551.5 j2 in control. However, no significant difference was observed in the gi for the 2-4 true leaves treatments. The concentration of 50 mgL^{-1} for 12 h recorded, 6.3 gi compared with gi 10 in the control. At the age of 6-7 true leaves, the concentration of 50 mgL^{-1} for 3 h significantly increased the gi to 2. 7 compared with 8.5 gi in the control. [Dhulfiqar. L. E. Al-Sandooq, Farkad A. Fattah (Iraq). Iraqi Journal of Agricultural Sciences, 46(2): 236-245, 2015].

Interaction of *Bacillus subtilis* and *Trichoderma harzianum* with mycorrhiza on growth and yield of cucumber (*Cucumis Sativus* L.). Experiment was conducted in field to study the influence interaction of *harzianum sativus*. The present study showed that the relationship between *mosseae* was positive due to getting a significant increase in the number of spores and the percentage of colonization and the infection index of AM fungi and interaction among (+ *T. harzianum* root (14.57) % and mycorrhizal dependency (79.8) %. *B. subtilis* treatments with or without fresh root weight. This increase is due to get a significant increase in chlorophyll a,b and total chlorophyll in all treatments comported with control without any addition, and in my treatment there is a significant increase in weight of mycorrhizal roots and mycorrhizal dependency. [Hadi Mahdi Aboud, Ali Hashim Al-Mosaye and Rabab Majead Abed (Iraq). International Journal of Current Research, 6(8): 7754-7758, 2014].

LEBANON

Asymmmetrasca decedens (Cicadellicae, Typhlocybinae) a natural vector of *Candidatus* Phytoplasma *phoenicium* in Lebanon. In Lebanon, almonds witches broom, associated with *Candidatus* Phytoplasma *phoenicium* is a lethal disease of almond (*Prunus dulcis*), peach (*P. persica*), and nectarine (*P. Persica* var. *nucipersica*). The disease has rapidly spread from coastal areas to altitudes above 1200 m,

killing more than 150,000 trees during the past 20 years. Transmission experiments have recently shown that the leafhopper *Assymetrasca decedens* (Hemiptera, Cicadellidae) is a vector of the disease. During these studies, it has also been found that the incubation period of the disease in plants could exceed one year. Further research is needed on the mode of transmission of *Candidatus* Phytoplasma *phoenicium* by *A. decedens,* and more generally on the epidemiology of the disease. It is also concluded that international cooperation and IPM strategies are needed to contain this lethal disease of fruit trees. [Y. Abou-Jawdah, A. Abdel Sater, M. Jawhari, H. Sobh, H. Abdel Nour, P. A. Bianca, M. Molino Lova and A. Alma (Lebanon). Annals of Applied Biology, 165: 395-403, 2014].

MOROCCO

Global distribution of *Erysiphe platani*: new records, teleomorph formation and re-examination of herbarium collections. A global survey of the spread of the Platanus powdery mildew, *Erysiphe platani*, has been carried out. *E. platani* teleomorph formation was recorded in countries where the fungus anamorph has been present for several years. The first findings of chasmothecia were recorded in Austria, Czech Republic, France, Italy and Slovakia. New records of *E. platani* (including the teleomorph) were found in Belgium, Croatia and Denmark. The occurrence of this fungus in Sweden and in two countries of North Africa (Algeria and Morocco) was confirmed. Descriptions of morphological features, illustrations, and worldwide distribution of *E. platani* are provided. Herbarium collections of powdery mildews on Platanus spp. were re-examined and revised. The occurrence of *Phyllactinia guttata* on Platanus is discussed and questioned.[Katarina Pastirčáková, Martin Pastirčák, Katarina Adamčiková, Zouaoui Bouznad, Abdelaziz Kedad, Mohammed El Guilli, Danko Diminić and Monica Hofte (Morocco), Cryptogamie, Mycologie, 35(2):163-176, 2014].

Marker assisted evaluation for resistance to *Septoria tritici* blotch in Moroccan wheat Recombinant Inbred lines RILs. *Septoria tritici* Bloch caused by *Mycosphaerella graminicola*, is the major foliar disease in temperate rainfall Moroccan growing wheat regions. An F9 recombinant inbred population from cross between resistant synthetic hexaploid wheat “syn6” and a susceptible cultivar Mehdia was evaluated for resistance to septoria during three years under Moroccan field conditions at Sidi Allal Tazi and Merchouch stations. 13 SSR markers associated to some Stb genes (Stb1, Stb2, Stb3, Stb4, Stb5, Stb6, Stb8 and Stb14) were applied on this RILs population in order to find out linkage between markers and resistance genes against this disease and to identify which of these known genes are effectives. Only Xgwm389 marker linked to Stb2 had discriminate the septoria resistant lines from the susceptible. Most RILs that exhibited low *Septoria tritici* severity had 150bp allele as the resistant parent “Syn 6” and the other lines having high disease severity had allele 133bp present at Vernapolis, considered carrier of Stb2, at Chinese spring and Mehdia susceptible parent. Suggesting that Stb2 gene is broking and there is another gene closely linked to Stb2 on short arm of chromosome 3B conferring resistance to Syn6 and RIls population in Gharb region of Morocco**.** [Ghizlan Diria, Rabha Abdelwahd, Mustapha Labhilili, Benchaba Mhamed, Fatima Gaboun, Arhbal Aziz and Mohamed Ibriz (Morocco). International Journal of Agricultural Science Research, 3(10): 213-221, 2014].

The β-1, 4-endoglucanase gene is suitable for the molecular quantification of the root-lesion nematode, *Pratylenchus thornei.*A real-time quantitative PCR assay was developed for the accurate detection and quantification of the root-lesion nematode, *Pratylenchus thornei*. A qPCR primer set, including two primers and a probe, was designed based on the sequence of the β-1,4-endoglucanase gene. The assay was optimised by using the primers with SYBR green I dye and setting the qPCR program to different annealing temperatures ranging from 62 to 69°C. Based on the Ct values, we retained the program with an annealing temperature of 69°C. The specificity of the qPCR assay including the probe was confirmed by the lack of amplification of DNA from 47 populations belonging to 15 other *Pratylenchus* species and nine isolates from *P. thornei*. The assay was very sensitive as it was able to detect a single individual of *P. thornei*, even when mixed with up to 80 individuals of P. penetrans. DNA was extracted from exactly 80 *P. thornei* individuals. A dilution series from this DNA resulted in a standard curve showing a highly significant linearity between the Ct values and the dilution rates (R2=0.98; slope = −3.38; E=97.6%). The qPCR assay developed in this study proved to be specific and sensitive, thus providing a fast and accurate tool for detection and quantification of this pathogen during research, as well as for diagnostic labs. [Fouad Mokrini, Lieven Waeyenberge, Nicole Viaene, Fouad Abbad Andaloussi and Maurice Moens (Morocco). Nematology, 16(7): 789–796, 2014].

PAKISTAN

Phenotypic and genotypic variability for durable resistance to yellow rust (*Puccinia striiformis* f. sp. *tritici*) in Pakistan wheat cultivars. The wheat crop remains vulnerable to all three rust diseases (leaf rust, stem rust and yellow rust) caused by *Puccinia* spp. according to the prevalence of the pathogen in different wheat-growing areas worldwide. Stripe rust or yellow rust caused by *Puccinia striiformis* f.sp. *tritici* is the most significant rust pathogen which prefers cool, moist areas and highlands. The pathogen is recognized as

responsible for huge production losses in wheat. Genetic variation in pathogen makes its control difficult. Therefore, resistance against all the races of the pathogen known as durable or race-non-specific resistance is preferred. The present study was carried out to identify durable resistance against stripe rust in selected wheat cultivars from Pakistan through seedling testing, field evaluation at adult stage, morphological marker studies and marker-assisted selection. Results revealed that 4% of the cultivars were resistant at the seedling stage while the rest were susceptible or intermediate. To confirm their field resistance, the same cultivars were evaluated under field conditions at Cereal Crops Research Institute Pirsabak (located in Khyber Pakhtunkhwa, KP) a hot spot of stripe rust in Pakistan. Observations exhibited that at the adult stage 4% of the cultivars were resistant, 70% intermediate or moderately resistant while the others were highly susceptible. Leaf tip necrosis was observed in 30% of the cultivars. Wheat cultivars showing susceptibility at the seedling stage were highly to moderately resistant at adult stage showing durable resistance. For further validation, morphological markers were also observed in cultivars indicating the presence ofYr18/Lr34 gene. Eleven cultivars (C-518, Mexipak, Kohinoor-83, Faisalabad-83, Zardana-93, Shahkar-95, Moomal-2002, Wattan-94, Pasban-90, Kiran-95, and Haider-2000) were identified, having durable or race non-specific resistance against stripe rust. These cultivars can further be utilised in wheat breeding programmes for deploying durable resistance to attain long lasting control against stripe rust. [Naimat Ullah, Hadi Bux, Abdul Samad Mumtaz, Sadaf Tabasum Qureshi, Mahboob Ali Sial and Hikmet Budak (Pakistan). Archives of Phytopathology and Plant Protection, 48(2): 181-187, 2015].

SAUDI ARABIA

Characterization of different isolates of *Zucchini yellow mosaic virus* from cucurbits in Saudi Arabia. During the 2012 growing season, thirty-three samples were collected from squash, pumpkin and muskmelon plants showing virus-like symptoms in Riyadh and Al-Madena regions of Saudi Arabia. Eleven of these samples were found positive for *Zucchini yellow mosaic virus* (ZYMV) by double antibody sandwich ELISA (DAS-ELISA). In the host range study for the five selected ZYMV isolates, 11 out of the 22 mechanically inoculated test plants were infected and showed variable symptoms. The amplification of viral DNA product through reverse transcription-polymerase chain reaction amplification (RT-PCR) using a primer pair specific for ZYMV, yielded fragments of approximately 1185 bp. Southern blot hybridization confirmed the results obtained through RT-PCR, using a specific DNA probe homologous to ZYMV. Nucleotide sequences for the coat protein gene from all five Saudi isolates of ZYMV indicated a similarity of 97.1-100.0% between them. Comparative analysis of the nucleotide sequences of coat protein gene from the Saudi isolates and other ZYMV isolates obtained from NCBI, showed a relatively high nucleotide sequence similarity that ranged between 92.0-98.8%. The highest similarity was found with Syria, Jordan, Iran, Hungarian, Austria, Slovenia and Germany isolates (97.1 to 98.8%). The nucleotide sequence data obtained for the five ZYMV isolates was deposited in the GenBank under the accession numbers JQ899263, JQ899264, JQ899265, JQ899266 and JQ899267. [Mohammed A. Al-Saleh, Mahmoud A. Amer, Ibrahim M. AL-Shahwan, Omer A. Abdalla and Mohammed A. Zakri (Saudi Arabia). African Journal of Microbiology Research, 8(19): 1987-1994, 2014].

Detection and molecular characterization of alfalfa witches'-broom phytoplasma and its leafhopper vector in Riyadh region of Saudi Arabia. This study was conducted to detect for the first time the occurrence of phytoplasma in symptomatic alfalfa plants as well as in its insect vectors in Riyadh region of Saudi Arabia together with its characterization by comparing it with isolates detected elsewhere in the world. Disease symptoms similar to those described for phytoplasma diseases were observed on alfalfa plants growing in the Riyadh region (Wadi aldawasir, Sagir and AlZulfi), Saudi Arabia. Three representative alfalfa samples and two groups of leafhopper samples out of the total samples collected from the fields in the visited areas tested positive for plant pathogenic phytoplasmas using P1/P7 primer pair in the first round of PCR test. An additional PCR was conducted using the nested R16F2n/R16R2 primer pair, which yielded fragments of approximately 1.2 kb. The rest of the collected samples were tested using a synthesized cDNA probe for phytoplasma detection by dot blot hybridization. Fifty four out of 84 alfalfa samples and 65 out of 94 leafhopper samples collected from the abovementioned locations hybridized with the cDNA probe, representing 64.3% and 69.1%, respectively. The nucleotide sequences for the five positive samples were determined and were found to have 99.3%-100% nucleotide sequences identity among them, and share 97.3-98.8% sequence similarity with seven phytoplasma isolates belonging to the 16S rII (peanut witches'-broom group) obtained from the GenBank database. The nucleotide sequences of the five isolates detected in this study were published in the GenBank with the following accession numbers: JQ808130, JQ818819, JQ818820, JX646694 and JX646695**.** [Mohammad A. AL-Saleh, Mahmoud A. Amer, Ibrahim M. Al-Shahwan, Omer A. Abdalla and Boy V. Damiri (Saudi Arabia). International Journal of Agricultural and Biology, 16: 300-306, 2014].

Enhancing the efficiency of the bioagent *Bacillus subtilis* JF419701 against soil-borne phytopathogens by increasing the productivity of fungal cell wall degrading enzymes. This study was

devoted to increasing the production of fungal cell wall degrading enzymes by Bacillus subtilis JF419701 to enhance its efficiency in the biological control process. In dual culture, B. subtilis JF419701 showed the highest antagonistic effect of the 256 bacterial strains tested against six soil-borne pathogens, Alternaria alternata, Exserohilum rostratum, Fusarium oxysporum, Macrophomina phaseolina, Pythium ultimum and Rhizoctonia solani. The production potentiality of the enzymes α-1,3-glucanase,β-1,3-glucanase, chitinase and protease by B. subtilis JF419701 was studied in vitro. Results proved that the maximum production of enzymes by this bacterium was achieved after a two-day incubation period at a slightly alkaline pH (8). The addition of colloidal chitin or S-glucan to the growth media enhanced the production of all the enzymes except protease, which was stimulated by casein. This study therefore recommends that to obtain an efficient and strong bioagent culture of B. subtilis JF419701, it is necessary to grow this micro-organism on a specific medium containing either chitin or its derivatives at pH 8 for two days. [Saad A. Alamri (Saudia Arabia). Archives of Phytopathology and Plant Protection, 48(1): 159-170, 2015].

Molecular characterization of the 16SrII group phytoplasmas associated with faba bean (*Vicia faba* L.) in Saudi Arabia. This study was conducted to detect for the first time the occurrence of phytoplasma in symptomatic faba bean plants in Saudi Arabia. Faba bean is one of the most widely grown protein-producing food legumes. Ten leaf and stem samples showing symptoms of phyllody and stunting were collected from plants grown in Agricultural Research Station field Riyadh region, Saudi Arabia during December, 2011. The temperature in this area ranged between 15-20ºC. Two representative faba bean symptomatic leaves out of the total samples collected from the field in the visited area tested positive for plant pathogenic phytoplasmas using P1/P7 primer pair in the first round of PCR analysis. Nested PCR was conducted using the R16F2n/R16R2 primer pair, which yielded fragment of approximately 1.2 kb. No PCR products were obtained from the DNA extraction from asymptomatic plants. Phylogenetic analysis of the 16S rRNA gene of the obtained nucleotide sequence indicated that the two faba bean phytoplasmas isolates (faba bean phyllody and faba bean stunting) collected from Riyadh region of Saudi Arabia were more closely related to the phytoplasmas peanut witches'- broom group since its 16Sr RNA sequence showed a 97.2% to 99.3% identity with most members of this group. The nucleotide sequence for the Saudi Arabian isolates in this study were deposited in the GenBank with accession no. JQ861532 and JQ861533 respectively. The rest of the collected samples were assayed using cDNA probe for phytoplasma detection by dot and tissue blot hybridization. No hybridization was observed with DNA extracts from healthy plants**.** [M.A. Al-Saleh and M.A. Amer (Saudi Arabia). Journal of Animal & Plant Sciences, 24(1): 221-228, 2014].

Molecular characterization of two *Alfalfa mosaic virus* Isolates Infecting Potato Crop in Central Region of Saudi Arabia. During the autumn growing season 2012, thirty-two leaf samples of potato (*Solanum tuberosum*, L. cv. Herms) plants showing mottling symptoms suspected to be due to viral infection were collected from Hail and Wadi aldawasser regions in Saudi Arabia. These leaf samples were tested serologically using DAS ELISA against *Alfalfa Mosaic Virus* (*AMV*). Twenty-three out of the thirty-two samples were positive for *AMV*. To determine host range, plant sap was extracted from two diseased potato samples representing the two regions and different healthy plants were mechanically inoculated. The disease symptoms induced by the two selected isolates were divided into three groups: systemic and calico symptoms, local chlorotic lesions, and non-symptomatic ones. Total RNA was extracted from different plants showing positive reaction to *AMV*. RT-PCR was performed using *AMV* coat protein specific primers. Approximately 700-bp RT-PCR products were amplified, and these PCR products were sequenced in both directions. Nucleotide sequencing analysis showed that these two Saudi Arabian *AMV* isolates [*AMV*-PSA-Ha (for the Hail isolate) and *AMV*-PSA-Wd (for the Wadi Al Dawasser isolate] had a 96.5% identity. Sequence comparison showed that these two isolates of *AMV* shared 93.2% to 99.7% sequence similarity with the twenty-eight reported isolates of *AMV* obtained from GenBank. The cDNA probe was prepared and hybridized with RNA extraction from symptomatic potato plants. No hybridization was shown with RNA extracts from asymptomatic plants. This is the first report on the genetic variability of *AMV* isolates infecting potato crop in Saudi Arabia. [Mohammed A. Al-Saleh, Mahmoud A. Amer, Ibrahim M. Al-Shahwan, Omer A. Abdalla and M.T. Shakeel (Saudi Arabia). International Journal of Agricultural and Biology, 16: 976-980, 2014].

Physiological properties of facultative and obligate alkalophilic *Bacillus* sp. strains isolated from Saudi Arabia. Isolation and identification of new alkalophilic Bacillus strains have increasing interest due to their possessing valuable and commercially interesting enzymes. To date, several researchers have studied the identification and characterization of alkalophilic Bacillus strains based on the phenotypic characterization as phylogenetic analysis of 16SrRNA. In the present study, six obligate and facultatively alkalophilic isolates were purified from dessert soil around Al-qunfotha city, in Saudi Arabia. All isolates were phenotypically and genotypically characterized. Among these isolates, AS3, AS4, AS5 and AS6 could grow at pH 9, 10, 11 and 12, but could not grow at pH 7 indicating that this isolates are obligate alkalophiles while, isolates AS1 and AS2 grew at pH range from 7 to 10, but could not grow at pH 11 and 12, suggesting that they could be facultative alkalophiles. All isolates could hydrolyze casein and starch, indicating that they

possess interesting amylase and protease enzymes. Comparative sequence analysis of 16s rRNA of the six alkalophilic Bacillus strains indicated that these isolates share 99% identity with the previously isolated genes and belong to *Bacillus cohnii* at the full length gene nucleotide sequence level. The nucleotide sequences of 16SrRNA gene for the six isolates were given Gene-bank accession numbers: KP053301, KP053302, KP053303, KP053304, KP053305 and KP053306, respectively. [Assaeedi Abdulrahman (Saudi Arabia). African Journal of Biotechnology, 14(3): 175-180, 2015].

Studies for colour-selection of *Rhynchophorus ferrugineus* Oliv. Pheromone trap. The red palm weevil *Rhynchophorus ferrugineus* Olivier causes severe internal tissue damage to trunk of date palm in the Middle-east region. As one of the integrated pest management methods, mass pheromone trapping is done with modified upright bucket trap to capture and kill adult weevils. Since there is no unanimity so far regarding colour of trap for maximizing weevil catch, choice, multiple-choice and field tests were conducted with two neutral, white and black, and six colours from across the visible spectrum, viz., blue, green, yellow, orange, red and brown-reddish. Y-tube device was fabricated to test the response of adult *R. ferrugineus* to a dark chamber / black versus the colors in a choice test. Significantly, more adult weevils chose dark chamber over all the colors tested. For multiple-choice test, an arena was fabricated with the same eight colors. The difference between mean numbers of weevils recovered from black (3.88), orange (2.88), red (2.75), brown-reddish (2.63) and green (2.63) color areas were insignificant whereas recoveries from blue (2.38), yellow (2.13) and white (1.38) were significantly lower. A replicated field experiment with standard Saudi food-baited pheromone bucket traps of eight tested colors confirmed the laboratory results as significantly higher mean numbers of adult weevils were captured from black (7.63), orange (5.70) and red (5.27) traps, comparatively. The studies showed that the black is the most effective amongst the tested trap colours, however, orange and red colored traps can also be used in mass pheromone trapping program of *R. ferrugineus*. [Mahmoud M. Abdel-Azim, Rashid M. Khan, Saleh A. Aldosari, P.S.P.V. Vidyasagar, Samy M. Ibrahim and Paraj Shukla (Saudi Arabia). Journal of Plantation Crops, 42(3): 386-391, 2014].

SYRIA

Effect of ethyl acetate on the number of red palm Weevil *Rhynchophorus ferrugineus* Olivier (Coleoptera: Curculionidae) captured in dark red and yellow aggregation pheromone traps. Aggregation pheromone Traps, is the main element in the control program of the red palm weevil, *Rhynchophorus ferrugineus* Olivier, in most of its distribution sites in the world. A field trial was conducted in randomized complete block design at Al Rahba farms (UAE) during May 2009 to May 2010 to study the effect of ethyl acetate (EA) on the number of weevils captured in dark red and yellow pheromone traps. Results showed that, the red palm weevil was found all over the year, and the peak adult population trapped was during March–May. The highest catches (35.96±1.96 weevils/trap/month) were in the red traps that contains ethyl acetate, with significantly higher number of red palm weevil than yellow. The capture rates were 27.32 and 18.32 weevils/trap/month for red and yellow traps, respectively. The capture rates were 30.77 and 15.40 weevils/trap/month for traps with and without ethyl acetate, respectively. The sex ratio (male: female) was 1:2.11. [Ahmad Hussen Al-Saoud (Syria). Syrian Journal of Agricultural Research, 2(1): 128-139, 2015].

Population changes of pear psylla *Cacopsylla pyricolla* (F.) (Psyllidae: Hemiptera), and monitoring of natural enemies in Homs, Syria. The parasitoids and predators species associated with pear psylla Cacopsylla pyricolla (F.) were monitored in Mokhtaria Research Station, Homs, Syria, during seasons 2011 and 2012. The results showed presence of eleven predators and two parasitoids species. The predatory species belong to five orders: Heteroptera [*Anthocoris nemoralis* (F.), *Orius horvanthi* (Reuter) (Anthocoridae)], Neuroptera [*Chrysoperla carnea* (S.) (Chrysopidae)], Coleoptera [*Coccinella septempunctata* (L.), *Oenopia conglobata* (L.), *Coccinella undecimpunctata* (L.), *Hippodamia variegata* (Goeze), *Adalia bipunctata* (L.) (Coccinellidae) and *Rhagonycha fulva* (Scop.) (Cantharidae), *R. fulva* is a new record on C. pyricola in Syria], Diptera [*Eupeodes corollae* (F.), Dermaptera [*Forficula auricularia* (L.) (Forficulidae), while the parasitoids belong to family Encyrtidae order Hymenoptera [*Trechnites psyllae* (R.) and *Psyllaephagus euphyllurae* (M.)]. The predator *A. nemoralis* was the most abundant with *C. pyricolaranged* from 45 to 49% comparison with other predator species trapped by beating tray. As well, the parasitoid species *T. psyllae* was the most abundant with the pest ranged from 46 to 87% compared with other parasitoids attracted to the sticky traps. Both A.nemoralis and T. psyllae were the most coexisted ones with the pest, while the other predators and parasitoid species occurred in certain periods during the growing season, and most of parasitoids and predatorsabove responded directly to increase of prey population dynamic. The correlation was positive, and simple correlation coefficient of total parasitoids and predatorsabove in season 2011 was insignificant and positive with eggs and nymphs of the pest 0.23 and highly significant and positive with adults 0.41, while in season 2012 it was insignificant and positive with eggs 0.16 and highly significant and positive with nymphs 0.38 and adults 0.88 at probability level 5%. Therefore, the results showed that there are many parasitoids and

predators that we can use to decrease pest populations. [Bassam Oudeh, Wajeeh Kassis, and Randa Abu-Tara (Syria). Syrian Journal of Agricultural Research, 2(1): 158, 2015].

TURKEY

Evaluation of fungal antagonists to control black mold disease under field conditions and to induce the accumulation of antifungal compounds in onion following seed and set treatment. Three isolates, AS3 (non-aflotoxigenic *Aspergillus flavus* Link), TRIC7 and TRIC8 (*Trichoderma harzianum* Rifai), from onion (*Allium cepa* L.) growing soils were recently found to control black mold disease caused by *Aspergillus niger* (An) van Tieghem and to increase the accumulation of antifungal compounds in pot-grown onion sets. Their ability to increase bulb diameter and total soluble solids in marketable bulbs, to control black mold and to induce the production of antifungal compounds were tested in sets and marketable bulbs raised from treated seeds and sets, respectively, in naturally An-infested field soils at two locations. These isolates significantly controlled the disease at both locations, but they did not have any enhancing effect on set or bulb diameter and soluble solids in marketable bulbs. AS3 and TRIC8 in particular led to defense reactions with accumulation of antifungal compounds in sets and marketable bulbs in both locations. Different compounds were also identified in the fractions with highly antifungal effects. [Nuray Özer (Turkey). Crop Protection, 65: 21-28, 2014].

❖ Postgraduate Arab Students Activities Abroad

MSc Thesis Topics "Sustainable IPM Technologies for Mediterranean Fruit and Vegetable Crops" 2014/2015 (IAM-Bari)

- **Comparative detection of Flavescence Dorée and Bois Noir phytoplasmas in Insect vectors by nested-PCR, Real-time PCR and LAMP-PCR techniques**. Mustafa Majid Hassan, Iraq.
- **Development of integrated control programs using Ceranock "Attract and kill" system and the entomopathogenic fungus *Metarhizium anisopliae* to control *Ceratitis capitata* on Citrus in Morocco**. Tarik Oussouqe, Morocco.
- **Ecological investigations on the entomofauna of olive orchards in Apulia region**. Valdete Sefa, Albania.
- **Efficacy of different Eco-Friendly control agents for sustainable management of some insect pests on greenhouse tomatoes.** A. Abdehameed Moussa, Egypt.
- **Integrated pest management of the tomato leaf miner, *Tuta absoluta* Meyrick in tomato fields in Egypt.** Nizar Fahmi M.S. Goda, Egypt.
- **Investigation of viral diseases in Apulian Fig Germplasm collection.** Jihene Kheder, Tunisia.
- **Investigations on seed production and quality in Kosovo, with particular reference to tomato and pepper.** Bekri Xhemali, Kossovo.
- **Ozone as post-harvest treatment to control fungal contamination and mycotoxins in Sultana seedless raisins.** Mehmet Ali Akin, Turkey.
- **Setting up of a sampling method for *Xylella fastidiosa* in olive trees in Apulia region based on the use of the Direct Tissue Blot ImmunoAssay (DTBIA).** Mariam El-Hajji, Morocco.
- **Studies on the presence and the genetic diversity of *Spiroplasma citri* in Algeria and Italy**. Mounira Inas Drais, Algeria.
- **The efficacy and effectiveness of some chemical control Treatments against the complex of quick decline syndrome.** Yaseen Jundi Rahi, Iraq.

PhD and MSc Students Graduated from Arab Universities in Plant Protection 2014/2015

- **Activity of *Saccharomyces cerevisiae* and Salicylic acid and Chitosan against *Penicillium digitatum* the causal agentof green mold on orange fruits.** Marwah Emad Aldeen Al-Shaikhli (2014, MSc), Plant Protection Department, College of Agriculture, University of Baghdad, Iraq.
- **Control of Red flour beetle *Tribolium castaneum* (Herbst) (Coleoptera: Tenebrionidae) by using non-chemical methods.** Layth Hussein Ibraheem Al-aadhami (2014, MSc), University of Baghdad, Plant Protection Entomology, College of Agriculture, Sciences in Agriculture, Iraq.
- **Effect of endomycorrhizae in the control of tomato seedlings damping-off disease through the activation of some hormones and defending enzymes secretion**. Mohamed Imad Mohamed Kharebah (2015, PhD) Tishreen University, Plant Protection Department, Lattakia, Syria.
- **Effects of the Nematophagous Fungi *Arthrobotrys oligospora* Fresen and *Trichoderma harzianum* Rifai on Nematodes infecting Banana, Tomato and Lime Plants**. Suad Abdel Gamiel Mohamed Ahmed (2014, PhD), Plant Pathology, University of Gezira, Faculty of Agricultural Science, Plant Protection Department, Wad Medani, Sudan.
- **Field and laboratory studies on the date palm fruit stalk borer *Oryctes elegans* Prell (Coleoptera: Scarabeidae) in some regions of Karbala province**. Athraa A.Al-Grety (2015, MSc), University of Karbala, Plant Protection Department, College of Agriculture, Iraq.
- **Induced Systemic Resistance against Zucchini yellow mosaic virus by β-Amino butyric acid and the growth promoters Max3v and Top10**. Nazar Rashid Merzah (2014, MSc), Plant Protection Department, College of Agriculture, University of Baghdad, Iraq.
- **Investigation for fungi associated with Zinnia seeds and evaluation the efficiency of some treatments on its vigor and synchrony**. Rahman Issa Saeed (2014, MSc), Plant Protection Department, College of Agriculture, University of Baghdad, Iraq.

- **Some Aspects of Integration to Control Root and Crown Rot Disease of Watermelon.** Safaa Neamat Hussein (2014, MSc), Plant Protection Department, College of Agriculture, University of Baghdad, Iraq.
- **Study of Gray Mold Disease Caused By *Botrytis Cinerea* on Eggplant in Basra and its Integrated Control.** Bayda Abdul Redha Abdul Hussein (2014, MSc), Plant Protection Department, College of Agriculture, University of Basra, Iraq.
- **Study of pathology and wheat genotypes influence on the effectiveness of *Trichoderma atroviride* P. Karsten in the protection of wheat against *Fusarium culmorum* (WG Smith) Sacc**. Fayza Belhadj Ben yahia (2014, MSc), Department of Botany, National Higher School of Agronomy El Harrach, Algeria.
- **The critical period of weed competition in cotton fields under dry and wet conditions in Raqqah province, Syria**. Humam Yousif (2015, MSc), Agricultural Engineering College, Plant Protection Department, Aleppo University, Syria.

PHD AND MSC STUDENTS GRADUATED FIN COLLABORATION WITH ICARDA 2014/2015

- **Genes and Some Mechanisms of Resistance to Chickpea Leaf Miner.** Leena Ali (2015, PhD), Aleppo University, Agricultural Engineering College, Plant Protection Department, Syria.
- **Identification of *Trichoderma* spp. in Lentil Fields and their Antagonistic Effects against Lentil Wilt-Causing Fungus.** Ammar Bayaa (2015, MSc), Alleppo University, Agricultural Engineering College, Plant Protection Department, Syria.
- **Pathogenic Variability of Vascular Lentil Wilt Fungus (*Fusarium oxysporum* f.sp. *lentis* Vasud & Srin) by Molecular Tools.** Naeem Hussein, (2015, PhD), Alleppo University, Agricultural Engineering College, Plant Protection Department, Syria.

❖ Some Plant Protection Activities of FAO and Other Organizations

DESERT LOCUST SITUATION

Situation level: Calm

General Situation of the Desert Locust during MAy 2015 and Forecast until mid-July 2015 provided by the FAO Emergency Centre for Desert Locust (ECLO).

The Desert Locust situation remained calm during May. No significant breeding occurred this year in the spring breeding areas of Northwest Africa, the Arabian Peninsula and Southwest Asia where vegetation continues to dry out. During the forecast period, low numbers of solitarious adults are likely to appear in parts of the extensive summer breeding areas in the northern Sahel, stretching from Mauritania to western Eritrea as well as along both sides of the Indo-Pakistan border. Small-scale breeding will occur with the onset of the seasonal rains but locust numbers will initially remain low. Regular surveys should commence shortly but some areas such as northern Mali, Darfur and the interior of Yemen remain inaccessible due to insecurity.

Western Region. The situation remained calm in May. No locusts were reported in the region except for an individual adult south of the Atlas Mountains in Morocco. Vegetation dried out in the spring breeding areas. No significant developments are expected.

Central Region. The situation remained calm during May. No locusts were reported in the region. Vegetation dried out in the spring breeding areas of the interior of Saudi Arabia. During the forecast period, scattered adults are expected to appear in the summer breeding areas between North Darfur, Sudan and the western lowlands of Eritrea. Small-scale breeding will occur with the onset of the seasonal rains.

Eastern Region. The situation remained calm during May. No locusts were reported in the region and vegetation dried out in the spring breeding areas of southeast Iran and southwest Pakistan. During the forecast period, low numbers of adults are likely to appear in parts of the summer breeding areas along both sides of the Indo-Pakistan border where small-scale breeding will occur with the onset of the monsoon rains. For more up to date information about the Desert Locust situation and forecasts, visit the FAO's Desert Locust website:
http://www.fao.org/ag/locusts/en/info/info/index.html
and FAO Commission for Controlling the Desert Locust in the Central Region http://crc-empres.org.
Source: *The FAO Desert Locust Bulletin issued monthly in English and French by the Desert Locust Information Service, AGP Division (Rome, Italy; and Arabic version by the Commission for Controlling the Desert Locust in the Central Region (FAO Regional Office for Near East, Cairo, Egypt http://crc-empres.org).*

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

- FAO Commission for Controlling the Desert Locust in the Central Region in cooperation with Directorate General of Locust Affairs and Aerial Spray organizing a national training course on Desert Locust Campaign in Ismailia, Egypt from 5-11 April 2015. The training objective is organizing and managing of Desert Locust control campaigns. 16 Desert Locust officers and technicians attended the training from different provinces.

- FAO Commission for Controlling the Desert Locust in the Central Region, in cooperation with Ministry of Agriculture and Fisheries, Oman organizing a Environmental Health and Safety Standards on Desert Locust, Muscat from 3- 7 May, 2015. The workshop's objective is the introduce environmental health and safety standards in Desert Locust field and risks related to the use of chemical pesticides before, during and after control operations. 13 Desert Locust officers and technicians from Ministry of Agriculture and concern ministries were attended to the training course

INTEGRATED PRODUCTION AND PEST MANAGEMENT PROGRAMME (IPPM)

The framework of the IPPM Programme is built on three main objectives: building local farming capacity; improving food security and livelihoods; raising awareness.

Programme overview

The Integrated Production and Pest Management (IPPM) Programme was established in 2001, initially covering three countries in the West African region. With the principal objective of improving farming skills and raising smallholder farmers' awareness of risks from and alternatives to toxic chemicals, the programme has since significantly expanded its scope and is now present in 10 countries. To date, it has worked with more than 180 000 farmers, resulting mostly in improved yields and incomes, and making substantial progress in reducing the use of chemical pesticides. Through the development of national infrastructures for field-based training in IPPM, the programme has attracted the interest of other development initiatives to partner with its established network based on the farmer field schools (FFS) approach, including efficient national coordination units, hundreds of trained facilitators, functional relationships between the FFS staff and national and district-level institutions and local communities, and expertise in translating technical messages into farmer-friendly language.As a result, development projects dealing with rice, vegetables, cotton, river pollution, adaptation to climate change and a host of specialty crops are now using the FFS infrastructure and expertise provided by the programme.The framework of the programme is built on three main objectives: developing local farming capacity, improving food security and livelihoods and raising awareness.

Capacity development

To introduce, develop and encourage adoption of a community-based approach to capacity development that:

- focuses on developing farmer skills for improving agricultural management through application of techniques based on non-formal, discovery-based learning methods at the farmer and trainer level;
- involves all relevant actors at multiple levels: community, district, national and regional;
- emphasizes informed decision-making through an experimental, self-evaluative and "adaptive management" approach to agricultural research-extension systems; and
- helps farmers understand the basic mechanisms of the most important biological and ecological processes and how these processes can be encouraged through good management to contribute to improved productivity, profitability and system resilience.

Food security and livelihoods

To help participating countries develop a positive and consistent trend toward increased food security and improved livelihoods, the programme begins by organizing farmers in season-long, exploratory learning sessions that aim to:

- optimize the use of available inputs, including the elimination or large-scale reduction in use of toxic pesticides (i.e., WHO Category Ia, Ib and II pesticides);
- improve soil fertility management practices in order to increase water penetration and retention, nutrient-holding capacity, and diversity and activity of soil biota;
- increase yields and net farm income;
- help farmers to diversify farming systems in order to improve both ecological and economic resilience, as well as nutritional diversity; and assist farmers to better understand and manage economic decision making in order to increase profitability, including developing skills related to better local and regional marketing, basic business skills and self-financing mechanisms.

Awareness raising

To raise awareness at all levels as to the negative externalities associated with many agricultural practices and the positive alternatives that exist, including:

- understanding the high risks and or benefits associated with most pesticide practices and the availability of low-toxicity alternatives;

- developing capacity in local laboratories and universities for improved environmental monitoring of toxic chemicals in food and water;
- sharing results from the programme at all levels, from farmers to decision makers, through all appropriate avenues, including media (radio, TV, bulletins); and
- Assisting with the development of better national policies with regard to agriculture and its interaction with communities and the environment.

http://www.fao.org/agriculture/ippm/programme/en/

❖ Arab Society for Plant Protection News

Participation of the Arab Society for Plant Protection in the Fourth International Arabic Language Congress

The Fourth International Congress of Arabic Language was held in Dubai, United Arab Emirates, under the patronage of his Excellency Mohamed Bin Rashed Al Maktoum, during the period 6-10 May 2015. Around 2000 participants from 74 countries registered for this event, where 721 papers were presented. The Arab Society for Plant Protection (ASPP) participated in this meeting with a paper entitled "The journal and publications of the Arab Society for Plant Protection, an innovative venture and a promising initiative for scientific writing in the Arabic language". The paper, prepared by Drs. Bassam Bayaa, Khaled Makkouk and Safaa Kumari, who all attended the meeting, was presented by Dr. Bayaa, and was very well received by the audience. The discussion that followed the presentation reflected a great interest in the paper's contents, and there was a sincere appreciation of the ASPP efforts in unifying Arabic plant protection scientific terms through the journal and through the publication and distribution of the "Dictionary of Arabic Scientific Terms in Plant Protection". To familiarize all ASPP members with the contents of the paper, it will be published as a review paper in the August 2015 issue of the Arab Journal of Plant Protection.

Twelfth Arab Congress of Plant Protection

The Arab Society for Plant Protection (ASPP) gladly announces that the 12th Arab Congress of Plant Protection will be held in Cairo, Egypt, during November 2017. The congress will be organized by ASPP in collaboration with the Agriculture Research Center (Plant Protection Research Institute and Plant Pathology Research Institute), Ministry of Agriculture, Egypt. The organizing Committee for the congress was recently established, and the different sub-committees, which will cover all organizational aspects of the congress, will be established soon. The first announcement for the congress will be distributed in the near future and will be available at the congress and ASPP websites. For more information about the congress, please contact the congress secretary Prof. Dr. Mortada Eissa, Plant Protection Research Institute, email: mortada_eissa@yahoo.com. *More information about the congress will be published in the coming issues of ANEPPNEL.*

AN ASPP MEMBER RECEIVES AN INTERNATIONAL AWARD

Professor Abdulaziz Al Ajlan, Emeritus Professor of Entomology, King Faisal University, Hofuf, Alhasa, Saudi Arabia received **the 2014 President IB-ESA Award** from the International Branch (IB) of the Entomological Society of America (ESA) at the ESA Annual Meeting in Portland, Oregon, USA, November 16 – 19, 2014. This award is in recognition of outstanding service to the Entomological Society of America as President International Branch November 2013 - November 2014. He organized the 2014 IB Business Meeting at the 10th (Xth) European Congress of Entomology 2014 (ECE 2014), 3-8 August 2014, which was attended by the President of ESA with some members of its Governing Board to collaborate with the European Entomological Societies. Additionally, he organized two scientific sections titled:
S6: IPM and invasive species Organized by Aziz Ajlan (Saudi Arabia)
S48: Managing *Rhynchophorus ferrugineus*: a global Challenge Organized by Aziz Ajlan (Saudi Arabia)
(http://www.royensoc.co.uk/meetings/20140803_ece2014_author_and_programme_listing.htm)
Similarly, he will organized the 2015 IB Business Meeting at the 19th Congress of the Entomological Society of Southern Africa and the 37th Congress of the Zoological Society of Southern Africa, 12 - 17 July 2015, which will be attended by the President of ESA with some members of its Governing Board to collaborate with the Entomological Society of Southern Africa. As well, he will organized two scientific symposia titled:
-Towards a global system for Sustainable IPM *Tuta absoluta*. (Convener: Dr. Aziz Ajlan)

-Managing *Rhynchophorus ferrugineus*: beyond IPM. (Convener: Dr. Aziz Ajlan)

(http://www.essa-zssa2015.co.za/programme.html)

❖ General News

KHALIFA INTERNATIONAL DATE PALM AWARD EIGHTH SESSION 2016

Applicants wishing to participate in the Eighth Session of Khalifa International Date Palm Award are advised to apply from the 02nd of June until 31 of October 2015, announced General Secretariat of the Award. Interested candidates can apply to any of the award five categories, which are: Date Palm Research and studies, Date Palm best producer (individual and/or institutions), The best new Technology, The best development project, Influential Figure(s), (most important achievements) in the Date Palm Industry. The administrative office of the award will coordinate with the candidates to ensure the completion of all necessary paperwork. For more information, the General Secretariat of the Award welcomes all participants to apply and to visit the award website: www.kidpa.ae.The application should be sent to the address: Khalifa international Date Palm Award, P.O.BOX 82872, AL Ain, UAE. Email: kidpa@uaeu.ac.ae.
Prof. Abdelouahhab Zaid, Secretary General of Khalifa International Date Palm Award

WORKSHOPS & MEETINGS

- The 25th International Congress of Entomology, September 25-30, 2016 in Orlando, Florida, USA. The symposium is entitled: "No More Invasive Insect Species: Is Quarantine the Answer?" There are hundreds of records of invasive insect species that have spread worldwide resulting in serious damage and economic loss. Important examples being, the red palm weevil,*Rhynchophorus ferrugineus*, the American palm weevil, *Rhynchophorus palm arum*, the South America tomato moth, *Tuta absoluta*, the Asian citrus psyllid, *Diaphorina citric*, the Africanized honeybee, *Apis mellifera scutellata* and the cotton bollworm, *Helicoverpa armigera*. If you are interested to give a 15 minutes presentation, you can submit it on line (http://ice2016orlando.org/submit-to-ice-2016/preview-the-15-minute-paper-application-before-you-get-started/). The total time for the symposium is 4 hours and that can accommodate a total of 15 speakers only. This is an opportunity to participate in a historically significant entomological event. Aziz Ajlan, Khalid Al-Hudaib (both are ASPP members) and Jose Romeno Faleiro organize the symposium.

- **A workshop on the status of date palm pests in Iraq.** On April 26, 2015, a workshop was convened at the College of Agriculture, Department of Plant Protection, University of Karbala, Iraq. The workshop reviewed the status of date palm in Iraq through six presentations. The aim of this workshop was to provide an open forum to discuss key pests attacking date palm in Iraq. Professor Hasan Kadhum Al-Najm, the Dean of the college and Dr. Rajaa Ghazi Al-Janabi Head of the Plant Protection Department welcomed all participants and further explained that the purpose of the workshop is to share best practices for successful pest management of date palm in Iraq. Professor Ibrahim Al-Jboory gave a short introduction about the status of date palm in Iraq and the main factors that have led to the sharp drop in the numbers of date palm trees in the country. The decreased population was attributed to the first and second Gulf war, drought, soil salinity and urbanization by cutting down thousands of date palm trees in order to expand housing due to the high population growth in Iraq over the past ten years. Dr. Mohammed Zaidan Khalaf (Ministry of Science and Technology, Agricultural Research Directorate) gave a presentation on the date palm stem borer. This is the major insect pest of date palms, which attack different parts of the tree. Six different borer species attack date palm trees in Iraq, which causes damage to the date palm trees and reduce production. Dr. Hadi Mahdi Abboud (Ministry of Science and Technology, Agricultural Research Directorate) gave a presentation on a serious disease of date palm in Iraq, named inflorescence rot caused by *Fusarium proliferatum,* which is considered as a yield-limiting factor. During hot and humid seasons, this disease causes a significant loss, especially if heavy rain occurred (up to two month) before spathes emergence. Under favorable conditions, this disease can cause infection of the same date palm tree repeatedly every year. Mr. Basim Hassoon (Ministry of Science and Technology, Agricultural Research Directorate), gave a presentation on biological control of Dubas bug in Iraq, and highlighted the importance of applying these approaches in modern pest management of Dubas bug in Iraq and other countries. Mr. Hussein Ali Baqir (staff member of the College of Agriculture) gave a presentation on the potential use of Agriculture-Navigation GPS guidance systems for the aerial application of Date palm pests. This approach has several advantages including increased accuracy, traceability, real time information, and reduced chemical pesticides use. Mr. Taha Mousa Al-Sweed (Staff member of College of Agriculture) gave a presentation on the date palm mite, *Oligonychus afrasiaticus* (McGregor) (Acari: Tetranychidae), a

serious pest of date palm fruits. He focused in his presentation on the best available controlling methods in Iraq.

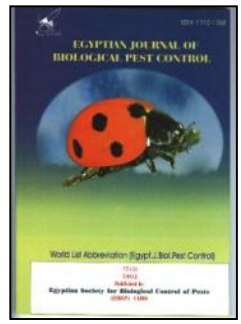
- **Fifth International Congress of Plant Protection Research Institute: "Agricultural production and plant protection challenges", 3-6 May 2015, Hurghada, Egypt**. Under the patronage of his Excellency Prof. Dr. Salah Helal, Minister of Agriculture and Land Reclamation, in the presence of Prof. Dr. Abdel Moneim Al-Banna, Chairman of the Agricultural Research Center and Prof. Dr. Mortada Ahmed Issa, Director of Plant Protection Research Institute, 80 scientific papers in various areas of plant protection were presented from different Arab countries (Algeria, Libya, Jordan, Iraq, Syria, Pakistan, Sudan, Saudi Arabia, in addition to several scholars from Egyptian universities and research centers. The conference included a series of articles that represent the fundamentals of plant protection: the vision for the management system of agricultural pesticides in Egypt, yield estimation system, health and environmental accounting for pesticide use, effect of pesticides on Egyptian agricultural exports to global markets, agricultural pesticides industry in Egyp, silk production and its uses. The conference was wrapped up with a number of recommendations: establishment of an integrated database for pest control workers in the area, review of the life cycles and monitor new changes in the behavior of insect pests and animals linked to climate, expand the role of agricultural extension in raising awareness to combat insect and animal pests, promotion and development of plant breeding programs incurred risk for insect and animal pests, the use of biocides (virus-fungus-bacteria) as an alternative to pesticides, interest in the fight against diseases of the honeybee and the interest in genetic improvement programs for different breeds to get the highest rate of production of honey and its derivatives, interest in silkworm breeds and distributed to educators to increase the production of silk cocoons with improved tools solve cocoons. The organization committee decided to organize the sixth International Conference on plant protection Research Institute in October 2018.

❖ Publications

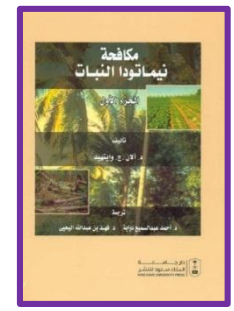
New Books

New Issue of Egyptian Society for Biological Control of Pests Journal (ESBCP)

ESBCP is publishing a scientific international journal in two volumes annually in the field of biological and integrated pest control entitled: **Egyptian Journal of Biological Pest Control** (*Abbreviation: Egypt J. Biol. Pest Control)***.** The journal is evaluated internationally since 2008 (has an IMPACT FACTOR, estimated annually).The CAB International Association in England publishes annually full texts of the journal scientific papers according to the agreement between it and the ESBCP. The journal is listed among the specific scientific journals in the E-publisher associations; El-Sevier &Thomson and Reuters & Scopus. Abstracts of the journal published papers, since 1990, are available on the ESBCP website: www.esbcp.org The journal is marketing internationally through the agreements with the American publishers; ProQuest & EBSCO.

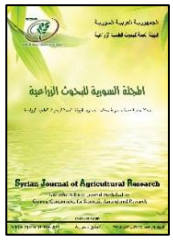


The second edition of the Arabic translation for the British book "Plant Nematode Control" had been recently issued by King Saud University Press. The first and second editions of the Arabic translations have been achieved by Prof. Ahmed A.M. Dawabah and Prof. Fahad A. Al-Yahya, and have been published in 2008 and 2015, respectively. The English edition of the book had been authored by Alan G. Whitehead and published by CABI in 1998. The Arabic translation included 875 pages in two volumes. Vol. I. included the chapters 1-7 within the pages 1-472 as follows:



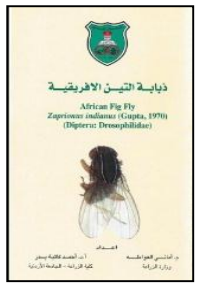
Chapter 1: Plant-Parasitic Nematodes, Their Importance and Control.
Chapter 2: Seed-Gall and Leaf Nematodes (*Anguina* and *Aphelenchoides*).
Chapter 3: Stem and Trunk Nematodes (*Bursaphelenchus*, *Rhadinaphelenchus* and *Ditylenchus*)
Chapter 4: Ectoparasitic Nematodes of roots (*Belonolaimus*, *Criconemella*, *Hoplolaimus*, *Longidorus*, *Trichodorus*, *Paratrichodorus*, *Tylenchorhynchus* and *Xiphinema*).
Chapter 5: Semi-endoparasitic Nematodes of Roots (*Helicotylenchus*, *Rotylenchulus* and *Tylenchulus*).
Chapter 6: Migratory Endoparasites of Roots and Tubers (*Hirschmaanniella*, *Pratylenchus*, *Radopholus* and *Scutellonema*).
Chapter 7: Sedentary Endoparasites of Roots and Tubers (I. *Globodera* and *Heterodera*).
Vol. II. Included the chapters 8 and 9 plus Appendices, References, Terminology and Indices within the pages 473-875.
Chapter 8: Sedentary Endoparasites of Roots and Tubers (2-*Meloidogyne* and *Nacobbus*).
Chapter 9: Conclusions and Future Prospects for control.
Publisher: King Saud University Press, Riyadh, Saudi Arabia.
Price: 120 SR (Vol. I + Vol. II).

New Issue of the Syrian Journal of Agricultural Research (SJAR), Vol, 2(1), 2015



The Syrian Journal of Agricultural Research (SJAR) is a peer reviewed scientific semiannual journal issued by the General Commission for Scientific Agricultural Research, Syrian Arab Republic. The journal publishes original papers covers different agricultural fields. Agro Biotechnology, Agro Environment, Animal, production, Field crops, Food technology, Genetic resources, Horticulture, Irrigation, drainage, Plant, Protection, Socio economic, Soil sciences and Water resources management.
http://agri-research-journal.net/

Arabic brochure on African Fig Fly *Zaprionus indianus* (Gupta, 1970) (Diptera: Drosophilidae): The brochure contains useful information about African fig fly *Zaprionus indianus* including importance of the fly, damages caused by this pest, geographical distribution, development stages, life cycle and control methods applied in integrated pest management program. In addition, it contains a brief of ecological and biological studies on this fly in Jordan, which were carried out under field and laboratory conditions and illustrated with photos taken by the authors. Amani Alawamleh, Ahmad katbeh-Bader 2015.



SELECTED RESEARCH PAPERS

- **Biological control of garlic (Allium) white rot disease using antagonistic fungi-based bioformulations.**Razak Mahdizadehnaraghi, Asghar Heydari, Hamid Reza Zamanizadeh,Saeed Rezaee, Jafar Nikan. Journal of Plant Protection Research, 55(2): 136-141, 2015.
- **Effects of *Bacillus thuringiensis* var. *kurstaki* and *Spinosad* on three larval stages 1st, 2nd and 3rd of tomato borer, Tuta absoluta (Meyrick) (Lepidoptera: Gelechiidae) in laboratory conditions.** Mohammad Hassan Safaralizadeha, Shahram Aramideha & Zahra Hashemitassujia. Archives of Phytopathology and Plant Protection. 48(5): 377-384, 2015.
- **Linking plant disease models to climate change scenarios to project future risks of crop diseases: a review.** Peter Juroszek; Andreas von Tiedemann. Journal of Plant Diseases and Protection, 122: 3-15, 2015
- **Spatial Distribution of Dubas Bug, *Ommatissus lybicus* (Homoptera: Tropiduchidae) in Date Palm Frond Rows.** Mohammed Z. Khalaf, Mohammed W. Khudhair. International Journal of Entomological Research. Int J. Entomol. 3(1): 9-13, 2015.
- **The alpha-cypermethrin coated net for protecting Norway spruce wood against bark beetles (Curculionidae, Scolytinae**). Iwona Skrzecz, Wojciech Grodzki, Mieczysław Kosibowicz, Dorota Tumialis. Journal of Plant Protection Research, 55(2): 156-161, 2015.
- **Weed growth properties of *Amaranthus retroflexus*, Echinochloa crus-galli and Setaria viridis as influenced by shifts in the maize cropping season.** Kristian Peters; Bärbel Gerowitt. Journal of Plant Diseases and Protection, 122: 49-55, 2015

PAPERS PUBLISHED IN THE ARAB JOURNAL OF PLANT PROTECTION (AJPP) VOLUME 33, ISSUE 1, APRIL 2015

REVIEW PAPER

- **Advances in using genetic transformation to produce apple cultivars and rootstocks *(Malus domestica* Borkh.) resistant to fungal and bacterial diseases: a scientific review.** N.M. Ali Bacha, M. Battha, A.M. Abdul Kader and F. Hassan (SYRIA & GERMANY) (Page 1-35).

BIOLOGY, ECOLOGY

- **Effect *of Citrus tristeza virus* infection on growth of Balady common orange and Satsuma trees in Al-Thawraa, Syria**. R. Hamdan, I. Ismail and G. Makhoul (SYRIA) (Pages 36-42).
- **Seasonal activity of the leopard moth, *Zeuzera pyrina* L. in apple and walnut orchards at Lattakia, Syria, using sex pheromone traps.** J.A. Ibrahim, A.M. Basher and L.H. Aslan (SYRIA) (Pages 43-49).

SURVEY

- **Detection and distribution of *Potato virus Y* on solanaceous crops and associated weeds in Latakia Province in Syria**. M.H.H. Halabi, N. Abbas and E. Hasan Akel (SYRIA) (Page 50-54).

CONTROL

- **The effect of artificial swarming on Varroa mite population development.** N.Y. Daher-Hjaij and A.K. Alburaki (SYRIA) (Pages 55-59).

NATURAL CONTROL

- **Effective of some plant aqueous extracts and *T. viride* filtrate in controlling grey mold of onion after harvesting.** Z.I. El-Gali, N.A. Mohamed and A.A. Larbud (LIBYA) (Pages 60-65).

PESTICIDES

- **Resistance of field strains of house fly *Musca domestica* L. to three selected synthetic pyrethroid insecticides in Riyadh City, Saudi Arabia**. S. Alzahrani, A. Ajlan and M.J. Hajjar (SAUDI ARABIA) (Pages 66-71).

NATURAL ENEMIES

- **Effect of constant temperatures on the biology of the parasitiod *Diaeretiella rapae* (M'Intsohm) when parasitizing the cabbage aphid, *Brevicoryne brassicae* (L.) under laboratory conditions**. A. Basheer, L. Aslan and R. Asaad (SYRIA) (Pages 72-79).

- **First record of the parasitoid wasp *Sphecophaga vesparum (*Curtis*)* in nests of *Vespa orientalis* (L.) in**

Syria. N.Y. Daher-Hjaij, M. Allan, A.K. Alburaki and A. Almanoufi (SYRIA) (Pages 80-82).

PLANT EXTRACTS

- **Inhibitory effect of volatile oil extracted from fruits of Syrian juniper *juniperus drupacea* on the growth of some plant pathogenic fungi**. J. Fandi, W. Alhakim and M. Issam Hasan Agha (SYRIA) (Pages 83-86).
- **Comparison of the toxicity of three botanical extracts on the second nymph of the Citrus Mealybug *Planococcus citri* (Risso) under nursery and laboratory conditions**. M. Ahmadi and B. Amiri-Besheli (IRAN) (Pages 87-92).

TOXIN PRODUCTS

- **Inhibition of germination and seedling growth of rice by culture filtrate of aflatoxigenic *Aspergillus flavus*.** S. Nayak, U. Dhua, C. Sengupta, S. Samanta and S.R. Dhua (INDIA) (Pages 93-95).

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

- **Detection and distribution of olive drupe rot disease caused by *Sphaeropsis dalmatica* (Thum.) Gigante in Aleppo province, Syria.** Mohammad Matar and Atie Arab (SYRIA).
- **Effect of Biocontrol agents on *Fusarium* wilt caused by *Fusarium oxysporum* f. sp. *ciceri* (padwick) on chickpea under laboratory and field conditions.** Omar Hammoudi and Ali Sbieh (SYRIA).
- **Effect of low temperatures on the activity of the entomopathogenic nematode *Heterorhabdites bacteriophora* Poinar *in Vitro*.** M.H. Al-Zainab and R.U. Ehlers (SYRIA & GERMANY).
- **Effect of some herbicides in controlling broomrapes (*Orobanche* spp.) and major weeds in food legumes (chickpea, lentil and faba bean).** A. Shomar, N. Al-Hussein, K. Al-Shamaa and B. Bayaa (SYRIA).
- **Effect of *Trichoderma harzianum* on *Fusarium oxysporum* f. sp. *ciceris* causing chickpea wilt.** Leila Abdel El-Rahim Aloush, Sabah Khayro El-moghrabi and Basima Ahmed Barhoum (SYRIA).
- **Efficacy of some bio-agents in protecting olive trees against infestation with the termite *Microcerotermes diversus* (Silv.).** R.F. Al-Jassany and M. A. Al-Salehi (IRAQ).
- **Efficiency of a commercial formulation of the fungus *Metarhizium anisopliae* on mortality of termite *Microcerotermes diversus* (Silv.) workers under laboratory conditions.** R.F. Al-Jassany and R. Abdel Radah Al Zubidi (IRAQ).
- **Efficiency of arbuscular mycorrhiza in the control of tomato damping-off caused by *Pythium ultimum* along the Syrian coast**. Mohamad Imad Khriba, Ibtisam Ghazal, Mohamad Fawaz El-Azmeh and Wafa Chouman (SYRIA).
- **First, record of the bug *Dionconotus neglectus neglectus* on onion *Allium cepa*at Tartous, Syria.** Ali Yaseen Ali, Ahmad Ahmad and Jafer Amar (SYRIA).
- **Laboratory evaluation of some local entomopathogenic fungi isolates against cotton whitefly, *Bemisia tabaci* (Genn.).** Amal Haj Hasan, Mohamad Ahmad and Sabah El-Moghrabi (SYRIA).
- **Potential of *Phytomyza orobanchia* Kalt. And *Smicronyx cyaneus* Gyll. as biocontrol agents of the parasitic weed *Orobanche crenata* Forsk. Along the coastal region of Syria.** H. Habak, M. Ahmad and B. El-Rahban (SYRIA).
- **Relative susceptibility of some safflower cultivars to infestation with fruit fly (Diptera: Tephritidae) in Damascus, Syria.** A.N. Bashir, L. Aslan and F. Abdel Razzak (SYRIA).
- **Susceptibility of some chickpea accessions to infestation with leaf miner *Liriomyza cicerina* Rondani and its impact on yield.** Lina Ali, M. El-Bouhssini, A. N. Trisy and N. Kaake (SYRIA).
- **The causal agents of wheat crown and root rot in Syria, their pathogenicity, and the reaction of some wheat cultivars and wild relatives to the disease.** S. Al-Chaabi, S. Masri, A. Nahlawi and L. Matrod (SYRIA).

EVENTS OF INTEREST

2015

*** 24–27 August**

18th IPPC International Plant Protection Congress, Berlin, Germany.
http://www.ippc2015.de

*** 30 August – 03 September**

5th Conference of the International Working Group on Legume and Vegetable Viruses (IWGLVV), Haarlem, the Netherlands.
http://www.plant-virology.nl/IWGLVV2015

*** 27 – 30 September**

The Scientific Conference of the Australian Entomological Society.
http://www.aesconferences.com.au/

*** 21-25 September**

10th European Vertebrate Pest Management Conference, Seville, Spain.
http://www.evpmc.org/

*** 08 - 10 October**

9th MGPR International Symposium: Pesticides in Food and the Environment in Mediterranean Countries, Hammamet, Tunisia.
http://www.mgpr2015.tn

***19-22 October**

The 4th International (regional) Conference of Applied Biological Control of Agricultural Pests, Cairo, Egypt. The Egyptian Society for Biological Control of Pests (ESBCP) has the pleasure to welcome and invite regional scientists, researchers, academicians, and those who are involved with various aspects of biological control from government agencies, universities, research and extension institutions, organic farming, and international agencies to present and exchange expertise of all regional aspects of biological control, including recent development related to environment – friendly pest management strategies. The 4th international (regional)

conference of applied biological control of agricultural pests scheduled 19-22 October 2015 in Cairo, Egypt.
http://www.esbcp.org

2016 - 2018

*** 7- 9 April 2016**
9th International Symposium on Septoria Diseases of Cereals, Paris, France.
http://ccdm.curtin.edu.au/symposium.cfm

*** 20-24 June 2016**
11th International Symposium on Adjuvants for Agrochemicals (ISAA 2016), Monterey, USA.
www.isaa2016.org

*** 25-30 September 2016**
The XXV International Congress of Entomology, Orlando, Florida, USA
http://ice2016orlando.org/
http://www.spongospora.ethz.ch/workshops.html#CH

***14-18 November 2016**
9th Australasian Soil-borne Diseases Symposium Heritage Hanmer Springs, Canterbury, New Zealand.
http://www.appsnet.org/Interest_Groups/ASDS/asds.aspx

*** 29 July – 03 August 2018**
1th International Congress of Plant Pathology (ICPP2018), Boston, Massachusetts, USA.
http://www.icpp2018.or

PRIVATE ENTERPRISES NEWS

Russell IPM team smash £100,000 charity target

Led by director Diana Al-Zaidi, the Russell IPM team has raised a magnificent £100,000 for Leukaemia & Lymphoma Research and they have done it in just four and half years. A special celebration, held at the company's site on Deeside on Friday 15 May, marked the achievement. As Shakir Al-Zaidi explained, the fund-raising effort began after their young grandson Callum Gosling was diagnosed with leukaemia. "We didn't want to just sit down and feel sorry for ourselves," he said. Watching Callum's brave battle through some very harsh treatment inspired them to set up the Russell IPM Foundation with a target of £100,000 and every £1 raised has been matched by £1 from the company. So the fundraising began and as Shakir explained everyone has contributed. "With Diana's determination and hard work from the whole team the target has now been achieved. Many members of the Russell team have made regular contributions through their salary, there have been sponsored bike rides, jumble sales, endless raffles, cupcake competitions, quiz nights and even an ice skating marathon!" There has also been great support from the community local to the company's North Wales base as well as many a raffle ticket purchased by pest professionals from up and down the country whilst visiting the Russell stand at events! The celebration was attended by all Russell staff along with a number of friends and industry colleagues. Guests of honour were Ray Hughes, chairman of Flintshire County Council, recently re-elected local MP, Mark Tami and Catriona Tait from Leukaemia & Lymphoma Research. All three applauded the achievement. A real contribution Catriona explained how the amount raised will make a real contribution to the work of Leukaemia & Lymphoma Research. Over the past 10-15 years, the advances made have had a huge impact; treatments are now less harsh and much more successful.
Source: Pest independent news for pest professionals, May 2015

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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.