



ARAB AND NEAR EAST PLANT PROTECTION NEWSLETTER



Number 64, April 2015

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EDITORIAL

The Legacy Continues

Few weeks ago a fellow friend and an active ASPP member, **Dr. Adwan Shehab**, was assassinated by a cowardly act of a brutal gang who attacked him in his home in a Damascus suburb. All who know him confirm that he was a kind, generous and an extremely loving and a caring human being. I was shocked and saddened by the early departure of this young and promising scientist who went out of his way whole heartedly in supporting his fellow workers including ASPP members. The respect he earned was immediately felt by the call from many ASPP members to establish a scientific award carrying his name. God bless his soul, and shame and disgrace fall upon the criminals who murdered his body but not his soul.



Dr. Shehab served as the ANEPPNEL Editor since 28 November, 2010 and until his departure on 16 February, 2015. During this period, the newsletter witnessed significant progress. More colleagues were attracted to contribute to the contents of the newsletter, publishing rate became three instead of two issues annually, publication form was transformed from printed to electronic version, and the issues were always published on time. In addition, he was the first Editor-in-Chief of the Syrian Journal of Agricultural Research published by the General Authority of Agricultural Scientific Research, with the first issue published shortly before his death.

In spite of his early departure, Dr. Shehab had a productive life. He published 26 research papers in international refereed journals during the period 1999-2014, and four papers in the University of Damascus Agricultural Journal; co-authored two books, one on rodents in Jordan and the other on stored grain pests in Syria. He co-edited the abstract books of the 7th and 9th Arab Congresses of Plant Protection, wrote a chapter in the ASPP published book on “Safe Application of Pesticides”, and prepared and published two extension bulletins, one on field mice and the other on mole rat.

In all his contributions, Dr. Shehab was a shining star within a young society committed to make a difference for the coming generations of plant protection scientists. He proved to be highly credible and represented a generation committed to a respectable mission. Those who assassinated him probably thought by eliminating him they can stop the achievements he initiated. All of us who respected and loved Adwan, will prove that this will not be the case.

ASPP sadly and painfully announces the early departure of a young scientist, but at the same time announces that he was a role model to follow by the coming generations, and in this occasion extends sincere condolences to all his friends and colleagues and especially his immediate family, in the hope that those who committed the crime will be identified and receive the proper punishment they deserve. ASPP will make sure that what the martyr started will continue along the same path, then his soul will rest in peace.

*Bassam Bayaa
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RESEARCH HIGHLIGHTS

ALGERIA

Comparison of *Botrytis cinerea* populations collected from tomato greenhouses in northern Algeria. To estimate the genetic diversity and population structure for a better understanding of the spread of *Botrytis cinerea*, we genotyped with nine microsatellite markers 174 isolates collected from four greenhouses during three growing seasons in the region of Bejaia. Four of these isolates were detected as *Botrytis pseudocinerea* according to the allele size at locus Bc6. For all other isolates further studied, all loci were polymorphic, with the mean number of alleles per locus ranging from 2.77 to 5.22. Considerable genetic variability was detected in all subpopulations ($D^* > 0.87$; $H_{nb} > 0.40$). Based on the standardized index of association analysis, significant but low levels of clonality occurred, not excluding the possibility of recombination ($rD = 0.07$, $P < 0.001$). A total of 109 haplotypes were characterized among the isolates, few of which were shared between subpopulations. This, together with moderate genetic differentiation among subpopulations according to the geographical origin ($0.080 < F_{ST} < 0.167$), suggested a low level of inoculum exchange among greenhouses and little carry-over of inoculum from one sampling season to the next. The importance of genetic structure of *B. cinerea* populations is discussed and should be taken into consideration for the management of grey mould. [Ahmed Adjebli, Christel Leyronas, Kamel Aissat and Philippe C. Nicot (Algeria). Journal of Phytopathology, 163(2): 124-132, 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, Khamsa Rouabah. Journal of Plant Protection Research, 55 (1), 2015].

EGYPT

The cotton mealybug *Phenacoccus solenopsis* Tinsley (Hemiptera: Pseudococcidae) as a new insect pest on tomato plants in Egypt. Recently, the mealybug *Phenacoccus solenopsis* Tinsley (Hemiptera: Pseudococcidae) was recorded as a new pest on tomato plants (*Lycopersicon esculentum* Mill) growing in Egypt. The mealybugs' specimens were collected from tomato plants in the Qalyoubia governorate during summer season of 2014. The mealybug was identified as *P. solenopsis* based on the morphological characters and taxonomic key of this species. This study represents the first record of *P. solenopsis* as a new insect pest attacking tomato plants in Egypt. [Samah Sayed Ibrahim¹, Fatma Abdelhalim Moharum¹, Nesreen Mohamed Abd El-Ghany (Egypt). Journal of Plant Protection Research, 55(1), 2015].

LEBANON

Fungal community associated with grapevine wood lesions in Lebanon. The aim of this study was to detect and identify the cultivable micro-organisms putatively associated with esca disease in representative Lebanese vineyards. Two field surveys were conducted in Lebanon in 2005 and 2007 to study the fungal community associated with grapevine wood lesions. A total of 68 vines showing typical esca symptoms were randomly sampled in 17 vineyards and cross sections were obtained of cordons and trunks. The shape and type of inner necrosis and discoloration were examined and isolations were made from the symptomatic wood. Isolation results showed that inner necrosis and isolated fungi were similar to those previously found

elsewhere, namely in Central Europe or Mediterranean countries. Additionally, three methods for numerical evaluation of micro-organisms found were compared. Most fungal pathogens generally associated with grapevine trunk diseases were detected, of which the basidiomycete *Fomitiporia mediterranea* and species of the ascomycete family *Botryosphaeriaceae* were the most frequently encountered. Additionally, a large diversity of other wood colonizing micro-organisms was detected. The putative role of some of the obtained micro-organisms in the process of wood degradation related to esca disease is discussed. [E. Choueiri, F. Jrigiri, P. Chlela, V. Mayey, G. Comont, J-M. Liminana, L. Mostert, M. Fischer and P. Lecomte (Lebanon, France, South Africa and Germany). J. Int. Sci. Vigne Vin, 48 :293-302, 2014].

MOROCCO

First report on *Pseudomonas marginalis* bacterium causing soft rot of onion in Morocco. *Pseudomonas marginalis* is an important postharvest pathogen causing soft rot in a wide variety of harvested fruits and vegetables. Isolated strains from rotten onion bulbs based on morphological characteristics, were tested for pathogenicity on tobacco. Pathogenic strains underwent a biochemical test which detected the presence of *P. marginalis*. Symptoms were reproduced by inoculating this species to onion leaves and bulbs. Based on ARN16S sequencing, reported associated species (*Pantoea agglomerans*, *Pseudomonas fluorescens*, *Klebsiella oxytoca*) were also confirmed. This study reports for the first time the presence of *P. marginalis* bacterium in Morocco causing the soft rot of onion bulb, in association with *Pantoea agglomerans*, *Pseudomonas fluorescens*, and *Klebsiella oxytoca*. [Achbani E. H., S. Sadik, R. El Kahkahi, A. Benbouazza, and H. Mazouz (Morocco). Atlas Journal of Biology, 3(2): 218-223, 2014].

IRAQ

The sensitivity of *Sitotroga cerealella* eggs to UV rays of the wave lengths of 312 and 365 nanometer. A study on the radio sensitivity of *Sitotroga cerealella* eggs to UV rays was carried out using two wave length, the results showed that the wave length of 312 nm has more effect on the biological parameters of the grain moth than the wave length of 365 nm. The study showed that the eggs of two days old was more sensitive to the UV-rays than the other insect stages. Furthermore, there was an effect of the UV rays on the egg hatch percentage and the egg hatch percentage was 0.333 ± 0.21 at the exposure time of 7.5 min for the wave length of 312 nm. The UV rays also affected the rate of emergence of the adults which was reduced to 0.00% for males and females at the time of exposure of 5 min. Moreover, the UV rays appeared to affect the males & females longevity. [Rasha Sattam Hameed, Ayad Ahmed Al-Taweel, Layla Jabbar Mohamed (Iraq). Iraqi Journal of Science and Technology, 6(1), 2015].

Test some local isolates of the bacterium *Bacillus thuringiensis* insect fig moth *Ephestia cautela* (Lepidoptera: Pyralidae) reared on artificial diet in the labrotary. This research carried out in the laboratory of Technical Institute/Musayyib in 2011, has been tested six isolates local bacteria *Bacillus thuringiensis* on the first stage and the last of the larvae of a figs moth *Ephestia cautela* (Lepidoptera: Pyralidae) reared on the artificial diets, while treated control with water only. and took the percentage of mortality results after 2, 5, 8 days since results showed that the highest mortality rate of 96.6% on the eighth day in each of the isolates DE 1-8 and NA 2-1 and DE 2-3 when Concentration 1.2×10^6 spor/ml. While less kill ratio at treatment SL 4-1 in the concentration of 1.2×10^4 spor /ml, amounting to 23.3%. isolation DE 2-3 achieved the highest rate at 72.2% at the concentration 1.2×10^6 spor /ml. within eight days, while the lowest rate was 23.3% when isolation SL 4 -1 Concentration 1.2×10^4 spor /ml. The higher efficiency relative to *Bacillus thuringiensis* in the mortality of the last instar larvae of the insect fig moth *Ephestia cautella* rate has reached 34.7% in isolation DE 2-3 focus 1.2×10^6 after the fifth day, while less relative efficiency rate was 6.8% when SL 4-1 in isolation Focus 1.2×10^4 . The overlap between the concentration and the periods of isolation has achieved higher mortality in DE 2-3 at 46.8% at the concentration of 1.2×10^6 spor /ml after 5 days of treatment either at least it was 0.00% in isolation SL 4-1 at the concentration of 1.2×10^4 spor /ml after 2 days of treatment. As for the larvae that has not reached the stage of the pupae is observed that the lowest rate could not be reached 52.6 when isolation DE 2-3 focus 1.2×10^6 spor /ml. Which differed significantly from the treatment comparison, while the percentage larvae that could not is when isolation SL 4-1 in Focus 1.2×10^4 at 94%, which did not differ significantly from the treatment comparison, either adult that emerged

from these pupae There was no significant effect on emergence percentage compared to the treatment of comparison where the lowest percentage rise of 88.8% when isolation AN 8-3 consecration 1.2×10^6 spor /ml while did not differ the rest of the other treatments for the of control mortality. The mortality efficiency was shown in the last larval instar compared to the first. [Ahmad M. Tarek and Jasser M. Jamil Al. Hadethy (Iraq). Diyala Agricultural Sciences Jornal, 7(1), 2015].

IRAN

Genetic diversity of *Thanatephorus cucumeris* infecting tomato in Iran. The necrotrophic fungus *Thanatephorus cucumeris* (anamorph *Rhizoctonia solani*) is among the most important soil-borne pathogens which causes tomato foot and root rot worldwide. We investigated virulence and genetic relationships among and within different taxonomic groups of *R. solani* from the tomato-growing regions in the north-east of Iran. Characterization of *R. solani* taxonomic groups revealed that, of 56 isolates, four were AG-2-1, 16 were AG-3 PT, 21 were AG-4 HG-I and 15 were AG-4 HG-II. Because interprimer binding site (iPBS), which is based on amplification of retrotransposons, is known as novel and powerful DNA fingerprinting technology, we selected four iPBS primers, which can detect polymorphisms of tomato foot root and root rot pathogen, for investigating genotypic variability of the isolates. The iPBS analyses separated various taxonomic groups of *R. solani* and showed great diversity among the isolates, demonstrating that the *R. solani* isolates obtained from tomato were not a clonal population. Crop rotation strategies and geographic location seem to be important factors affecting genetic structure of the isolates. Pathogenicity tests on tomato cultivar ‘Mobil’ showed significant differences in the virulence of various isolates. The overall results indicated that isolates of AG-3 and AG-4 were more virulent than AG-2-1. There was no significant correlation between genetic diversity and virulence of the isolates. This is the first report of *R. solani* AG-4 HG-II, causing tomato foot and root rot. Also, our research is the first in assessment of genetic diversity in fungal populations using iPBS molecular markers. [Atena Pourmahdi and Parissa Taheri (Iran). Journal of Phytopathology, 163(1): 19-32, 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 O₃ gas concentrations (50, 100, 150 ppm) in the atmosphere of 70% CO₂ 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 also 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 O₃ and CO₂ gases 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].

SAUDI ARABIA

Sublethal effect of chlorpyrifos and fenpropathrin on functional response of *Habrobracon hebetor* (Hymenoptera: Braconidae). One of the criteria for selecting a suitable natural enemy is its functional response to different densities of the host. *Habrobracon hebetor* (Say) is a larval ectoparasitoid of several species of lepidopteran. Functional response of *H. hebetor*, after treatment with LC₂₅ of chlorpyrifos and fenpropathrin in three stages, was assessed to different densities of fifth instar of *Ephestia kuehniella* (2, 4, 8, 16, 32 and 64). LC₂₅ values were estimated to be 0.043, 5.36 and 2.00 and 0.38, 13.9 and 4.45 mg a.i. l⁻¹ for the larval, pupal and adult stages for chlorpyrifos and fenpropathrin, respectively. Host densities were offered to treated wasps for 24 h. Experiments were replicated 10 times. The results showed that the functional responses of wasps in control as well as immature stages treatments were Type III, whereas those of adult stage were Type II.a (Type II) or b (Type III) and *T_h* parameters were evaluated with Roger’s equation. *b* and *T_h* in control were assessed to be 0.0129 and 0.1723 h, respectively. These parameters were estimated in

chlorpyrifos and fenprothrin to be 0.0052, 0.00718 and 0.1945, 0.2492 h in larval stage; 0.00817, 0.00916 and 0.2736, 0.3108 h in pupal stage; and a and T_h were 0.0064, 0.0137 h⁻¹ and 0.2492, 0.2242 h in the adult stage, respectively. The insecticide had no significant effect on the searching efficiency of *H. hebetor* compared with those treated in control; however, they had significant effect on the handling time of the parasitoid and increased it, except in the larval stage treated with chlorpyrifos treatment. [Hajar Faal-Mohammad-Ali, Hossein Allahyari and Mousa Saber. Archives of Phytopathology and Plant Protection, 48(1): 288-296, 2015].

PAKISTAN

Identification of new sources of resistance to *Septoria tritici* Blotch caused by *Zymoseptoria tritici*. Twenty-nine synthetic hexaploid wheats (SHWs) were evaluated for resistance to five isolates of *Zymoseptoria tritici*, a devastating wheat pathogen worldwide. The five *Z. tritici* isolates varied in their virulence spectra towards wheat genotypes, indicating that they have distinct set of avirulence genes. New isolate-specific resistances were identified that could be used in wheat breeding programmes. Comparing with the previous studies, the number of specific resistances identified in this study is considerable. Among 150 interactions, 78 isolate-specific resistances were identified. Interestingly, 21 wheat genotypes showed specific responses to one or more isolates tested. Of these, 12 genotypes were highly resistant to all isolates, indicating that they possess known or novel effective resistance genes. The Stb15 and Stb16/Stb17 are effective resistance genes towards isolates used in this study, indicating that the conferred resistance in these genotypes is due to the presence of either of these genes in combination or individually. Alternatively, they may carry novel broad-spectrum resistance gene(s) that their identification is of interest. Our data suggest that the presence of complete resistance to various *Z. tritici* isolates in SHWs justifies the need for more in-depth research to characterize the likely novel genes. [Rahim Mehrabi, Amin Makhdoomi and Mohammad Jafar-Aghaie. Journal of Phytopathology, 163(2): 84-90, 2015].

TUNISIA

Allelopathic effects of essential oils of *Pinus halepensis* Miller: chemical composition and study of their antifungal and herbicidal activities. The chemical composition, phytotoxic and antifungal activities of the essential oils isolated by hydrodistillation from the needles of Tunisian Aleppo pine harvested from different provenances were evaluated. The chemical composition analysed by gas chromatography/mass spectrometry (GC/MS) revealed variability among provenances displaying interesting chemotypes, (Z)-caryophyllene (16.16–28.9%), β -myrcene (8.5–22.9%), α -pinene (11.7–13.14%), β -pinene (3.13–11.8%), bicyclogermacrene (5.2–12.37%), α -terpinolene (8.11–11.01%) and α -humulene (2.85–5.2%), which were the main components in the oil. Antifungal ability of Aleppo pine oils was tested by disc agar diffusion against 10 phytopathogenic fungi. Weak antifungal activity was observed for the essential oils isolated. Furthermore, in contrast, the herbicidal activity investigated for three common weeds in Tunisian cereal crops was very strong and seed germination was inhibited at a low concentration and their herbicidal effects were higher than those of a commercial herbicide. [Lamia Hamrouni, Mohsen Hanana, Ismail Amri, Abd Errahmane Romane, Samia Gargouri & Bassem Jamoussi (Tunisia). Archives of Phytopathology and Plant Protection, 48(1): 145-158, 2015].

SYRIA

Effects of gamma radiation on the Mediterranean flour moth, *Ephestia kuehniella* Zeller, mature larvae and acceptability of irradiated larvae by *Bracon hebetor* Say females. Mediterranean flour moth, *Ephestia kuehniella* Zeller, mature 5th instars were exposed to gamma radiation dosages ranging from 50 to 350 Gy at 50 Gy increments and the effects on pupation, adult emergence and sex ratio were investigated. In addition, effects of irradiation on the rate of development to pupae and adults and the acceptance of irradiated larvae by *Bracon hebetor* Say females were examined. Results showed that the radio-sensitivity of *E. kuehniella* larvae increased with increasing dose. Pupation was significantly affected at 100 Gy and completely prevented at 350 Gy. Adult emergence was only slightly different from pupation; emergence was significantly affected at 100 Gy and completely prevented at 300 Gy. Irradiation also negatively affected the rate of development of larvae to pupae and adults. In addition, irradiation significantly affected male: female ratio; sex ratio was skewed in

favour of males, and at 250 Gy all emerged moths were males. Furthermore, irradiation had no adverse effect on the degree of acceptance of mature larvae to parasitization; irradiated insects were as acceptable to *B. hebetor* females as nonirradiated ones. [M. Mansour (Syria). Journal of Stored Products Research, 60: 43-47, 2015].

The functional and numerical response of predator *Stethorus gilvifrons* Mulsant fed on different densities of the spider mite *Tetranychus urticae* (Koch) in laboratory. The functional and numerical response of *Stethorus gilvifrons* on different densities of adult prey *Tetranychus urticae* (Koch) was studied on leaf discs of *Ricinus communis*, at temperature 30 ± 2 °C in laboratory. The predator consumed 4.04 ± 0.79 adults/day, when prey density was 5 adults. The predator consumption increased with increasing prey density. At 50 preys the predator consumed 32.04 ± 8.3 adults/day. Predation reached to 57.96 ± 10.9 adults/day when prey density was 100 adults. So according Holling (1959) model of functional response, we put *S. gilvifrons* predator under the third type (type III). The increase of prey density caused increasing in egg numbers of predator. The predator female didn't lay any eggs when prey density was 5 adults. The predator began laid eggs in few numbers 0.29 ± 0.63 egg/day when fed on 10 prey adults/day, and these numbers of eggs laid by predator increased to 3.69 ± 2.3 egg/day under prey density of 15 prey adult/day. the increase of eggs numbers reached to 21.2 ± 4.6 egg/ day when prey density was 100 prey/day, so we noticed the predator oviposition increased with high prey density, and these increase caused by increase in predation efficiency and these lead to another kind of response called numerical response. [Magda Mofleh, Ahmad Mohammad and Monzer Haloum (Syria). Syrian Journal of Agricultural Research, 1(1), 2014].

TURKEY

Characterization and sensitivity to fungicides of *Rhizoctonia* spp. recovered from potato plants in Bolu, Turkey. Isolates of *Rhizoctonia* spp. associated with stem canker and black scurf disease of potato were examined for their anastomosis group, sequence variations in the ITS-5.8S rDNA region, pathogenicity and sensitivity to fungicides. A total of 92 isolates were obtained from diseased tuber, stolon and sprouts of the potato plants, collected from five districts of Bolu province, Turkey. Based on the anastomosis group and the similarity of the nucleotide sequence of the ITS-5.8S rDNA, most of the isolates (81.5%) were identified as AG 3 PT. Other isolates belonged to AG 2-1 (1.08%), AG 2-2 IV (1.08%), AG 4 HG II (8.07%), AG 5 (2.17%), binucleate *Rhizoctonia* AG A (1.08%) and AG K (4.35%). Pathogenicity tests showed that isolates of AG 3 PT, AG 4 HG II and AG 5 caused similar degrees of disease severity on 45-day-old potato seedlings, whereas AG 2-1 was moderately virulent. AG 2-2 IV and binucleate *Rhizoctonia* spp. were weakly pathogenic or non-pathogenic on potato seedlings. In this study, anastomosis groups of *Rhizoctonia* spp. isolates associated with potato in Turkey were characterized for the first time using molecular techniques and classified at the level of subgroups. Furthermore, the effect of selected fungicides was evaluated on disease development caused by soil-borne inoculums of different anastomosis groups (AGs). Flutolanil and *Bacillus subtilis* QST 713 were found to be most effective against the *Rhizoctonia* isolates tested. These results revealed significant differences among the fungicides on disease development resulted from the different AGs. [Göksel Özer and Harun Bayraktar (Turkey). Journal of Phytopathology, 163(1): 11-18, 2015].

INVASIVE AND NEW PESTS

IRAN

‘Bois noir’: new phytoplasma disease of grapevine in Iran. Recently, grapevines showing symptoms suggesting the ‘bois noir’ phytoplasma disease were observed in vineyards located in several central provinces of Iran. Polymerase chain reaction assays using phytoplasma universal primer pair P1A/P7A followed by primer pair R16F2n/R16R2 in nested PCR, confirmed the association of phytoplasmas with symptomatic grapevines. The results of RFLP analyses using *HpaII*, *HinfI*, *MseI*, *RsaI*, and *TaqI* restriction enzymes, indicated that grapevine phytoplasma isolates in these regions could be related to the 16SrXII group. Sequence analyses of the partial 16S rRNA gene confirmed that Iranian grapevine phytoplasmas are associated with ‘*Candidatus* Phytoplasma solani’. This is the first report of the ‘bois noir’ disease outbreak in Iran. [Seyed Mehdi Mirchenari, Amir Massah, Leila Zirak. Journal of Plant Protection Research, 55(1), 2015].

ITALY

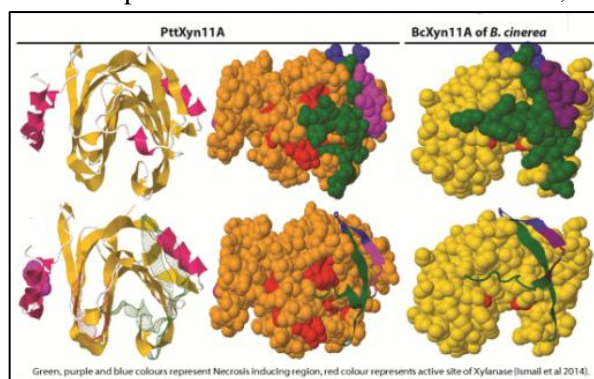
New invasive bacterium “*Xylella fastidiosa*” attaches Olive industry in Italy, becoming a serious threat in Mediterranean countries. *Xylella fastidiosa* is a regulated harmful organism considered in the European Union as a harmful organism not known to occur in any part of the Union, whose introduction into, and spread within, all Member States is banned. *X. fastidiosa* was detected in olive trees in Apulia, Italy, in October 2013, in association with extensive leaf scorch and rapid dieback of olive trees (*Olea europaea*). This is the first outbreak of *X. fastidiosa* under field conditions in the European Union and in the Mediterranean region. There is no record of successful eradication of *X. fastidiosa* once established outdoors due to the broad host range of the pathogen and of its vectors. Control strategies are only based on prevention of introduction from areas where the pathogen is present and on containment of the outbreak. The agent *Xylella fastidiosa* (Wells and Raju) is a vector-transmitted bacterial plant pathogen associated with important diseases in a wide range of plants and transmitted by leafhoppers. The vector of *X. fastidiosa* identified in Apulia is *Philaenus spumarius*, the 'Meadow Froghopper', belonging to the family Cercopidae. The recent outbreak of *X. fastidiosa* in Italy shows that the pathogen is highly associated to the extensive leaf scorch and dieback of olive trees (*Olea europaea*), which is named 'Olive quick decline syndrome (OQDS)'. This disease is present over a large area of Southern Italy (Apulia region) and its spread covers an area of thousands of hectares. [Thaer Yaseen email: y.thaer@iamb.it, IAM-Bari, Italy].



PLANT PROTECTION NEWS IN THE ARAB COUNTRIES AND NEAR EAST

POSTGRADUATE ARAB STUDENTS ACTIVITIES ABROAD

Proteomic analysis reveals the potential involvement of xylanase from *Pyrenophora teres* f. *teres* in net form net blotch disease of barley. To better understand the relationship between these toxins and virulence, a proteomics approach was used to identify proteins differentially expressed in a more virulent *Ptt* isolate. Three proteins were identified: an endo- 1,4- β -xylanase A (PttXyn11A), a cysteine hydrolase family protein (PttCHFP1) and an unknown (but conserved) secreted protein (PttSP1). PttXyn11A was homologous to a plant cell wall degrading enzyme but also had a predicted necrosis inducing region on the enzyme surface. PttCHFP1 showed homology to an isochorismatase, an enzyme proposed to suppress plant defence. Xylanase activity and *PttXyn11A* expression were greater in more virulent isolates *in vitro* and during the interaction respectively, suggesting that PttXyn11A plays a role in symptom development. [I.A. Ismail, D. Godfrey and A.J. Able. Australian Plant Pathol. 43: 715-726, 2014]



Fungal growth, proteinaceous toxins and virulence of *Pyrenophora teres* f. *teres* on barley. *Pyrenophora teres* f. *teres* (*Ptt*) causes net form net blotch (NFNB), an important disease of barley, but isolates of *Ptt* vary in their ability to cause symptoms on susceptible cultivars. *Ptt* isolates with different virulence were used to compare conidial germination and fungal growth on the barley cultivar 'Sloop'. Whether proteinaceous toxins from culture filtrates of the six isolates or different fractions and subfractions of those filtrates induced different symptoms was also investigated. Greater conidial germination and appressorial formation was observed during infection by more virulent isolates but hyphal length was variable. Even though the six isolates varied in virulence from low to high, the proteinaceous toxins extracted from culture filtrates of all

isolates were able to induce necrosis when injected into barley leaves. *Ptt* isolates therefore appear genetically able to produce proteinaceous toxins and the difference in virulence between isolates may reflect the growth of the fungus and the capacity for toxins to be delivered to the plant tissue. Proteins identified in the biologically active fractions included glycoside hydrolase, cysteine hydrolase, CFEM (common in fungal extracellular membrane) domain-containing protein, lactonase and peptidase. These have been previously suggested to have roles in plant cell wall degradation, fungal growth and/or host-pathogen interactions. [I.A. Ismail, D. Godfrey and A.J. Able. Australian Plant Pathol, 43: 535-546, 2014].

Molecular characterization of viruses infecting potato and vegetables in Iraq. A molecular based study was initiated to investigate the diversity of viruses infecting potato and vegetables in Iraq. Based on the economic importance and incidence worldwide, potyviruses, begomoviruses, carlaviruses, tombusviruses, potexviruses, cucumoviruses, tobamoviruses and alfamoviruses were screened in potato and vegetable samples from Baghdad, Anbar and Najaf provinces in Iraq. Using group specific primers, polymerase chain reaction (PCR) and reverse transcription-polymerase chain reaction (RT-PCR) were performed to screen samples. Products resulting from PCR/RT-PCR were cloned and sequenced and data obtained were used for sequence analyses. The above approach led to the first molecular characterization of three potyviruses; Potato virus Y (PVY), Bean yellow mosaic virus (BYMV) and Zucchini yellow mosaic virus (ZYMV), one begomovirus; Tomato yellow leaf curl virus (TYLCV), two carlaviruses, Potato virus S (PVS) and Cowpea mild mottle virus (CPMMV) and one tombusvirus; Grapevine Algerian latent virus (GALV) in Iraqi samples. The high similarities (93-99%) of virus sequence isolates suggest, viruses isolated may have been introduced into Iraq through international trading of plant materials used for cultivation as Iraq import most of plant materials for agriculture. Nawres Abdullelah Sadeq, PhD thesis, Plant Health and Environment Department, Natural Resources Institute, University of Greenwich 2013/2014].

THESIS ABSTRACTS OF ARAB AND NEAR EAST MASTER STUDENTS GRADUATED FROM MEDITERRANEAN AGRONOMIC INSTITUTE OF BARI 2013-2014

Facing the problem of ochratoxin A contamination of fresh grape and raisins in Algeria. Ochratoxin A (OTA) in grape is related to the presence of black Aspergilli. In this work fresh table grape and raisin samples collected from different regions in Algeria were tested for the presence of OTA and OTA-producing black Aspergilli. No black Aspergillus species was found in fresh table grape, while in raisins black Aspergilli were found in all the tested varieties, with differences between varieties and sampling regions. Generally Aspergillus carbonarius was the most frequently isolated species among black Aspergilli. 85% of A. carbonarius isolates and 75% of A. niger isolates were OTA producers. We investigated the effect of ozone (O₃) treatment at 0.3 ppm on conidia germinability. O₃ significantly controls conidia germinability of both OTA producer and non-producer isolates. These results underline the need to establish a limit for OTA contamination in grapes in Algeria and highlight O₃ potential to control fungal contaminants, especially those responsible for OTA production. [Fodil Sihem (Algeria), MSc, IPM of Mediterranean Fruit Trees, 2013-2014.]

Setting up of a rapid and innovative approach for the differentiation of Citrus tristeza virus (CTV) variants. Citrus tristeza virus (CTV), the causal agent of devastating epidemics, has induced so far the loss of almost 40 million citrus trees across the Mediterranean countries. Dramatic losses have been caused by the interaction of severe CTV variants with different scion-rootstock combinations, leading to the discrimination of three distinct syndromes known as quick decline, stem pitting and seedling yellows. In order to optimize the CTV strain identification methods, an efficient and innovative technique, "High resolution melting" analysis (HRM), was developed to differentiate the genotype(s) of 17 CTV sources derived from the MAI-B CTV collection. The method was compared with validated procedures like multiple molecular markers assays. The HRM assay proved to be rapid and highly reproducible. Therefore it could be applied in a high-throughput screening for economically important CTV mild and severe genotypes and help reduce the need for bio-indexing and sequencing analysis in monitoring programmes. [Gibriel Hesham Ahmed Yousef (Egypt), MSc, IPM of Mediterranean Fruit Trees, 2013-2014.]

Study of biology and bio-rational strategies to control peach fruit fly *Bactrocera zonata* (Saunders) (Diptera: Tephritidae) in Egypt. The present study was carried out to study, in laboratory conditions, the efficiency of entomopathogenic nematodes and fungi against *Bactrocera zonata*, (Saunders) (Diptera: Tephritidae). Selected entomopathogenic nematodes (*Heterorhabditis bacteriophora*, *Steinernema riobrave*

and *S. carpocapsae*) and fungi (*Beauveria bassiana* and *Metarhizium anisopliae*) were tested at different concentrations against immature stages of *B. zonata* under laboratory conditions, by contact and/or soil inoculation techniques. Results showed that both Steinernema species were more effective on full-grown larvae than *H. bacteriophora* whereas *H. bacteriophora* was more effective on pupae with soil inoculation technique. As regards the two fungal species, *B. bassiana* induced a higher mortality of *B. zonata* pupae with both techniques. Results suggested that entomopathogenic nematodes and fungi can be an alternative to the use of pesticides for the integrated control of *B. zonata* after validating protocols in field conditions. [Ahmed Marwa Mohammed Rashad (Egypt), MSc, IPM of Mediterranean Fruit Trees, 2013-2014].

The Potential of Spectroradiometry in the detection of *Xylella fastidiosa* associated to "Complesso del disseccamento rapido dell'olivo". Remote sensing, a successful methodology in early identification of suspected Citrus tristeza virus outbreak areas, was applied for the first time in Italy to monitor the presence of *Xylella fastidiosa* associated to 'Complesso del disseccamento rapido dell'olivo'. Combining multivariate statistical methods (Principal Component Analysis and Discriminant Analysis), serological and molecular laboratory assays and leaf spectral reflectance data, it was possible to detect specific wavelengths (500-800[nm] and 1100-1400 [nm]) and vegetation indices related to chlorophyll absorption (ARI, SRPI, PSRI, BIG2, Viopt, RVSI, PRI, SIPI, PSNDcar, YI, PSNDb, Index_SPAD, NDVI, MSRI, MCARI) and water absorption (WI). Spectral information showed a discrimination of *X. fastidiosa* infections in asymptomatic olive branches. Moreover, high spatial resolution satellite imagery was used to update the olive covered land in the main outbreak areas in order to apply a more accurate sampling procedure and to carry out epidemiological studies. [El Ammouri Farid (Lebanon), MSc, IPM of Mediterranean Fruit Trees, 2013-2014].

Survey of soil borne fungal pathogens of citrus and olive in Lebanese nurseries. Samples of soil and roots were collected in Lebanon from 21 nurseries and 3 mother plots of citrus and olive nurseries. Thirty-four soil samples were assayed by plating on a selective medium to quantify the pathogen inoculum density. Real time PCR was used to detect *V. dahliae*. The percentage of infected plantlets was assessed by isolation on semi-selective media. Results indicated that Lebanese nurseries were free from *V. dahliae* whereas the frequency of Phytophthora and Fusarium was respectively 72.7 % and 63.6 %. Phytophthora nicotianae, F. oxysporum and F. solani were the predominant species in citrus nurseries, whereas P. palmivora and F. oxysporum were the most common species in olive nurseries. These results represent the preliminary reports of soil- borne fungal pathogens from Lebanese citrus and olive nurseries. [Tabet Dania Hanna (Lebanon), MSc, IPM of Mediterranean Fruit Trees, 2013-2014].

Development of LAMP detection method for "*Botrytis cinerea*" the causal agent of grey mould disease of grapes. Loop-mediated isothermal amplification (LAMP) was applied to develop a reliable and rapid real time method, for specific detection and quantification of Botrytis cinerea. Six LAMP primers were designed based on the IGS (rDNA) sequence. The assay sensitivity, specificity and speed were evaluated. A DNA extraction from two different spore traps was developed for on-site LAMP application. The assay allowed to amplify a DNA concentration with sensitivity down to 1pg/μl in a short time period (12 min) with high specificity. The developed DNA extraction method combined with a Smart-Dart device made it possible to quantify airborne conidia from spore traps and to rapidly detect 10 conidia in less than 15 min. This method could be a valuable tool to quantify *B. cinerea* inoculum in the open field and contribute to the improvement of a decision support system for timing fungicidal applications. [Chakrani Soukayna (Morocco), Msc, IPM of Mediterranean Fruit Trees, 2013-2014.]

Investigation on the presence of *Xylella fastidiosa* in putative insect vector(s) in Apulia. Auchenorrhyncha insects, potential vectors of *Xylella fastidiosa* (Xf), were collected from highly infected Apulian olive orchards. DNA extracted from the adults of 3 out of 6 species (*Philaenus spumarius*, *Neophilaenus campestris* and *Euscelis lineolatus*), were Xf positive in PCR tests. The detection of *X. fastidiosa* in the above species suggests their potential vectoring role in Apulia. In order to substantiate this hypothesis, further investigations and infectivity trials should be performed. The nucleotide sequences of PCR amplicons from each insect species were 99.3-99.4% identical whereas 99.6%-99.7% identity was found with sequences of *X. fastidiosa* isolates from Apulian olive trees. This result indicates that a single bacterial strain is probably present in the region. *X. fastidiosa* was successfully detected by PCR in "spy insects" of Auchenorrhyncha captured in a buffer zone, 1 km far from the outbreak area, thus confirming the value of this approach for monitoring the bacterium in Xf-free areas. [Ben Moussa Issam Eddine (Tunisia), MSc, IPM of Mediterranean Fruit Trees, 2013-2014.]

Investigation on the presence of strawberry latent ringspot virus in Turkey and its role in the aetiology of Fig Mosaic Disease. A survey was carried out to assess the sanitary status of fig in the Aegean region (Turkey) and to study the etiological role of Strawberry latent ringspot virus (SLRSV) in mosaic disease (MD). A total of 145 samples of different varieties were collected and tested by RT-PCR for the presence of Fig leaf mottle-associated virus 1 (FLMaV-1), Fig leaf mottle-associated virus 2 (FLMaV-2), Fig mild mottling-associated virus (FMMaV), Fig latent virus 1 (FLV-1), Fig mosaic virus (FMV), Fig cryptic virus (FCV), Fig fleck-associated virus (FFkaV), Fig Badnavirus (FBV) and SLRSV. PCR results showed that about 91% of the samples were infected with at least one virus, with the prevalence of FBV (91%), FMV (89%) and SLRSV (71%). The high FMV infection did not allow to study the etiological role of SLRSV in MD. Based on PCR results, 5 potential virus-tested candidate clones were identified. [Turgut Fatma (Turkey), MSc, IPM of Mediterranean Fruit Trees, 2013-2014].

DOCTORATE AND MASTER STUDANTS GRADUATED FROM ARAB UNIVERSITIES IN PLANT PROTECTION 2014-2015

- **Study of effect of some organisms in apple trees dryness phenomenon.** Afra'a Motee' Haider (2015, Master) Plant Protection Department, Faculty of Agriculture, Tishreen University, Syria.
- **Some integrated pest mangement elements for the control of *Tetranychus urticae* Koch (Acari: Tetranychidae) on solanaceous plant in greenhouses.** Maryam Ekbal Hasson (2015, Master), Ministry of Higher Education, Al-Furat Al-Ausat Technical University, Technical Collage, Al-Musyyib, Iraq.
- **Induced Systemic Resistance in Tomato to Root knot Nematodes by Chemical and Biological Inducers.** Dhulfiqar Layth Ezzulddin Al-Sandooq (2014, Master), Plant Protection Department, College of Agriculture, University of Baghdad, Iraq.
- **Effect of Indian mustard extract and some Biopesticides on Tomato early blight disease caused by *Alternaria solani*.** Alla J.Abad (2014, Master), Plant Protection Department, College of Agriculture, University of Basra, Iraq.
- **Ability of manufacturing of bioformulation of *Pseudomonas fluorescens* pf-DS and its application in biocontrol of root rot caused by some fungi and nematode *Meloidogyne javanica* in eggplant and detected active bacterial compend by GCMass.** Sabah Safy Jassim AL Dery (2014, Master), Plant Protection Department, College of Agriculture, University of Basra, Iraq.
- **Survey for species of genus *Oryctes* spp. (Coleoptera: Dynastidae) in the middle and south of Iraq and Evaluation of some mothods for their control.** Hasan Moomin Lilo Al-Saeedi (2015, Master), , Plant Protection Department, College of Agriculture, University of Baghdad, Iraq.

❖ Some Plant Protection Activities of FAO and Other Organizations

DESERT LOCUST SITUATION

Situation level: Caution

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

The Desert Locust situation remained serious along the Red Sea coast in Sudan and Eritrea during February where control operations were carried out against numerous hopper bands and adult groups. Smaller scale operations were undertaken in Saudi Arabia. Any locusts that escape detection or control could form adult groups and a few small swarms that may eventually move to the Eritrean Highlands and the interior of northern Sudan and Saudi Arabia. If locusts reach the interior of Saudi Arabia and the Nile Valley in northern Sudan, breeding could commence by April. Elsewhere, ecological conditions improved in the spring breeding

areas of Northwest Africa and Southwest Asia where small-scale breeding is likely.

Western Region. The situation remained calm in February as no locusts were reported in the region. During the forecast period, low numbers of adults are likely to appear in the spring breeding areas south of the Atlas Mountains in Morocco and Algeria, and perhaps in the northern Western Sahara, northern Mauritania and in southwest Libya. Small-scale breeding is expected to occur as temperatures warm up and if rains fall.

Central Region. Numerous hopper bands and adult groups formed during February as a result of breeding on the Red Sea coast of Sudan and Eritrea. Control operations continued in both countries, including increased aerial control in Sudan where a few swarms were reported near the Eritrean border. As vegetation dries out on the coast, there is a risk that adults will form groups and perhaps a few small swarms that could move inland to the Eritrean Highlands and the Nile Valley in northern Sudan. Ground and aerial operations continued on the central Red Sea coast in Saudi Arabia against hopper bands and adult groups. As vegetation dries out, small groups of adults are likely to form and move to the interior where small-scale breeding will occur if rains fall. The situation is less clear in Yemen where low numbers of adults are likely to be present on the Red Sea and Gulf of Aden coasts.

Eastern Region. The situation remained calm and no locusts were reported during February. Light rains fell in parts of the spring breeding areas in southeast Iran and southwest Pakistan should allow for limited breeding during the forecast period.

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)

1. FAO Commission for Controlling the Desert Locust in the Central Region organizing a Regional Workshop on Desert Locust Contingency Planning in Hurghda, Egypt, 15-19 February, 2015. In

view of the current Desert Locust development in the front line countries of the Central Region, the outbreaks during 2013-2014, and the need for the implementation of solid and efficient contingency plans. Effective early response to locust infestations and their management relies on having well established and tested contingency and action plans in place in frontline and invasion countries before a locust emergency or crisis develops. In total, 26 participants from ten countries attended the workshop; Afghanistan, Egypt, Eritrea, Ethiopia, India,

I.R.Iran, Oman, Saudi Arabia Sudan, Yemen, FAO Secretary of Desert Locust Commissions, Desert Locust Organization for Eastern Africa (DLCO-EA) and two consultants. The participants were primarily Director Generals of Desert Locust Unit (responsible persons for planning control operations and implementing the Desert Locust campaigns during emergencies) and Locust information officer.



2. FAO Commission for Controlling the Desert Locust in the Central Region, organizing A Inter-Regional Desert Locust Information Officers training for nationally designated Locust Information Officer from frontline country is Egypt, 22-25 February, 2015. The workshop's objective is the strengthening of national early warning and reporting systems, improvement of the various tools used by the national locust information officers in their daily work. 17 nationally designated DLIOs from Seven countries in the



Central Region; Egypt, Eritrea, Ethiopia, Oman, Saudi Arabia Sudan and Yemen and three countries in the Eastern Region; India, I.R.Iran, Pakistan and one participant from the Desert Locust Control Organization for Eastern Africa (DLCO-EA) attended the workshop.

3. **Sub-Regional Consultation Workshop for fostering the cooperation among the countries on the implementation of the Rotterdam Convention. Beirut, Lebanon, 10-13 February, 2015.** To ensure better implementation of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, the UN Food and Agricultural Organization and the Convention Secretariat in cooperation with Lebanese Ministry of Agriculture organized a sub-regional workshop for Lebanon, Jordan, Saudi Arabia Kingdom and Sudan. The Rotterdam Convention was adopted by representatives of Parties in September 1998 and entered into force in February 2004. The Convention aims at promoting shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect human health and the environment from potential harm; to contribute to the environmentally sound use of those hazardous chemicals, by facilitating information exchange about their characteristics, by providing for a national decision-making process on their import and export and by disseminating these decisions to Parties. The workshop aimed to familiarize the participants with the objectives, benefits and main obligations of the Convention; to review the national reports on the implementation of the Convention and update the National Action Plan for the implementation of the Rotterdam Convention for the participating Parties. The workshop provided also a forum for Parties to foster cooperation, share common experiences and discuss challenges facing the implementation of the Convention to come out with appropriate recommendations and measures to overcome the challenges and enhance the implementation of the Convention in the participating Parties.



4. **The 10th Session of the Commission on Phytosanitary Measures of The International Plant Protection Convention (IPPC).** The International Plant Protection Convention (IPPC) is an international plant health agreement, established in 1952, that aims to protect cultivated and wild plants by preventing the introduction and spread of pests. The 182 Parties to the Convention form the Commission on Phytosanitary Measures (CPM) that serves as the Convention's governing body. The members of the Commission are the contracting parties to the Convention and are responsible for implementing the work programme of standards development, information exchange and capacity building. The CPM meets during March or April each year at FAO headquarters in Rome, Italy, to promote cooperation to help implement the objectives of the IPPC. The tenth session of the Commission of Phytosanitary Measures (CPM-10) was held at the Headquarters of the Food and Agriculture Organization, during 16-20 March 2015. The main IPPC activity is the formulation of science-based, internationally-agreed standards which detail how plants and plant products should be handled during trade, known as International Standards for Phytosanitary Measures (ISPMs), or so called ISPMs. More than fifty ISPMs have been developed so far, covering issues ranging from how plant products or wooden packing materials should be treated prior to export, to recommended procedures and methodologies used by agricultural inspectors, to procedures for conducting risk analysis and required formats for phytosanitary certificates.

1- Market Place Sessions: Three Market Places were held to provide a new forum during CPM to allow lively and concrete discussions as well as practical demonstrations on diagnostic and management of plant pests, as follows:

- **Banana pests** - The situation and practical diagnostic and management activities were provided on emerging pests affecting banana trees: the *Banana Bunchy Top Virus* and the Banana Xanthomonas Wilt (BXW) (*Xanthomonas campestris*).
- **Palm tree pests** - The situation and practical diagnostic and management activities were on emerging pests affecting palm trees: the Bayoud or vascular wilt (*Fusarium oxysporum* f.sp. *albedinis*); Alwijam

disease (Phytoplasma diseases) and the lethal yellowing of the palms; and the Red Palm Weevil (*Rhynchophorus ferrugineus*).

• **New Diagnostic Technologies Demonstrations-** Two hand-on demonstrations were made on new diagnostic technologies:

- The LAMP (Loop Amplification Mediated Process) Rapid amplification and testing of DNA through LAMP and the GENIE machine. These technologies can be used on several pests and have already been developed for *Bursaphelenchus xylophilus*, *Erwinia amylovora*, *Liriomyza huidibrensis*, *L. sativae* and *L. trifolii*, PSTVd, *Ralstonia solanacearum*, whitefly transmitted viruses (TOCV, TICV, PYVV, TYLCV, CLCuV), *Xanthomonas arboricola* subsp. *pruni*.
- Automated insect traps with a dedicated camera remotely sending pictures of the catch for monitoring. This technology can be used for fruit flies and wood borers.

2- Developing an early warning system for new and emerging plant pests and diseases:

An International Plant Sentinel Network

The International Plant Sentinel Network (IPSN) is being established to facilitate collaboration between botanic gardens and arboreta in Europe and beyond, and crucially, linking them with National Plant Protection Organizations (NPPOs) and Plant Health scientists. The IPSN will increase knowledge and awareness of plant pests and diseases among garden staff, seek best practise, develop standardised approaches, share information and provide general training materials and methodologies for monitoring and surveying pests.

This side session introduced the IPSN and provided an overview of progress to date; examined how linkages between botanic gardens and arboreta, NPPOs and Plant Health scientists can be strengthened; and discussed future activities and priorities for the network.

3- Expert consultation on phytosanitary treatments in *Bactrocera dorsalis* complex

The side session outlined the outcomes of the *Expert Consultation on Phytosanitary Treatments in Bactrocera dorsalis Complex* held from 1-5 December 2014 in Okinawa, Japan, and presented a list of National Plant Protection Organizations (NPPO) or Regional Plant Protection Organizations (RPPO) approved phytosanitary treatments used to control pest species within the *B. dorsalis* complex as one of its immediate outputs.

4- ePhyto

The ePhyto side session familiarized CPM participants with the concept of electronic phytosanitary certification, and ePhyto hub for the production and exchange of electronic phytosanitary certificates and the roles of the hub. Different systems for the production of electronic phytosanitary certificates were presented. The value of having an electronic phytosanitary certification system that will be available as broadly as possible with minimum technological requirements was highlighted.

5- IPPC technical resources

A series of technical resources is being developed to support national-level implementation of the International Plant Protection Convention (IPPC). Three IPPC new technical resources were presented as following:

• IPPC Technical Resource on NPPO Management

A set of materials on establishing and operating NPPOs provides information on legal and policy provisions for the establishment of an NPPO structure, mechanisms for financial resources, human resources, cooperation with third parties, and enforcement. It provides a range of options to encourage the establishment and operation of an efficient NPPO that meets the criteria and obligations of the IPPC.

• Plant Pest and Disease Diagnostic manual

The manual has been developed in cooperation with Plant Health and Environment Laboratory (PHEL), New Zealand to support NPPOs to develop a plant pest diagnostic laboratory to carry out entomological, bacteriological, mycological, nematological and virological testing of plant pests and diseases.

• Stakeholder relations manual



NPPO work and decisions involve and impact a range of public and private stakeholders. This manual provides guidance on what kind of stakeholder relations NPPOs can establish and how they are maintained.

The sessions discussed opportunities for national and regional use of the materials, and opportunities for you to be involved in the next steps. These resources will be freely available on the Phytosanitary Resources page (<http://www.phytosanitary.info/>).

❖ Arab Society for Plant Protection News

The Arab Society for Plant Protection Participates in the Fourth International Arabic Language Conference - The Fourth International Arabic Language Conference will be held in Dubai, United Arab Emirates, during the period 6-10 May, 2015, with 900 registered participants. The Arab society for Plant Protection (ASPP) will participate in this meeting with a paper entitled: “The journal and publications of the Arab Society for Plant Protection, a leading and innovative initiative for scientific writing in the Arabic language”. The paper was prepared by Drs. Bassam Bayaa, Khaled Makkouk and Safaa Kumari and will be presented by Dr. Bassam Bayaa. The presentation explains in detail how ASPP succeeded through its different publications to demonstrate that the Arabic language can be a live and dynamic publication mean not only for plant protection sciences, but for all sciences. In order to make this article available to a wide audience, the full paper will be published in the August 2015 issue of the Arab Journal of Plant Protection.



❖ Near East weed Science Society (NEWSS) News

NEWSS has a new Executive Committee - A new executive committee of NEWSS has been elected during the 11th Arab Congress of Plant Protection held in Jordan, Amman, 09-13 November 2014, the new EC members are: Dr Nadjia Zermane (from Algeria – Chairwoman), Dr Mustafa Haidar (from Lebanon – Secretary/Treasurer), Dr Yasser M. Shabana (from Egypt – Member at large), Dr Reasan K. Sahti (from Iraq – Member at large), Dr Aldur Balla Zahran (from Sudan – Member at large). The term of this EC will run for three years.



NEWSS is on facebook - To increase Newss visibility a facebook account was created at:

<https://www.facebook.com/pages/Near-East-Weed-Science-Society/828651497202789>

Currently 40 facebook users mainly professionals from the Near East region **LIKE** the NEWSS page, we hope to get increased number and more interaction from weed scientists from the region.

Dr Barakat Abu-Irmaileh and Colleagues (Amal M.F. Al-Aboudi, Musa H. Abu Zargab, and Firas Awwadi & Salim F. Haddad) - won the award for the best published applied scientific research from the Agricultural Engineer Society in Jordan - 2014 published in Natural Product research / online 2014. The Prize was awarded to Dr. Barakat Abu-Irmaileh by the Jordanian Minister of Agriculture in the presence of the Head of the Ag. Eng Association and the General Director of the Board of Awards. The awarded publication was entitled: “Selective phytotoxic activity of 2,3,11 β ,13-tetrahydroaromaticin and ilicic acid isolated from *Inula graveolens*”.



Weed Terminology Translation Project - A committee appointed by the Arab Society for Plant Protection for the translation of terms used in weed science finished the translation work of nearly 3700 words in Arabic and English. The French translation is in progress. the committee comprises the following members: Chairwoman: Nadjia Zermane – from Algeria, Members (T. Souissi – Tunisia; B. Abu-Irmaileh – Jordan; M.A. Mousily – Iraq; H. Ghosheh – Jordan; H.F. Abu-Zeina – Egypt; A. Satti – Sudan; B. Bayaa – Syria).

❖ General News

KHALIFA INTERNATIONAL DATE PALM AWARD WELCOMES NEW APPLICATIONS FOR SEVENTH SESSION 2015

Khalifa International Date Palm Award organisers announced the winners of its seventh annual prize, including researchers and horticulturalists based in the UAE. More than 130 researchers from 23 countries were considered for the prize. Most candidates were Arab, with others from Europe, the US and Australia. In each of the five categories, first-place winners received Dh 300,000, and second-place finishers received Dh 200,000.

The winners:

The Category of Distinguished Researches and Studies:

1. A comprehensive catalog of common sequence polymorphisms in date palm (*Phoenix dactylifera*) assembled by whole genome sequencing of 62 cultivars. Professor Michael Purugganan, Abu Dhabi New York University, UAE
2. Book of Fruit Tree Horticulture Date Palm, Omani Date Palm Cultivars / Royal Gardens and Farms Affairs - Royal Court Affairs / Oman. Distinguished Producers:

Distinguished Producer

1. Date Palm Development Research Unit Department – Date Palm Tissue Culture Laboratory – UAEU / UAE.

Best distinguished technology:

1. Isolation of Conserved DNA Sequences Related to the Human Sex-Determining Region from the date palm (*Phoenix dactylifera*) / Dr. Mohyeldin Solliman Mohammed – King Faisal University / KSA.
2. The best New Techniques DNA barcoding based on plastid *matK* and RNA polymerase for assessing the genetic identity of date (*Phoenix dactylifera* L.) cultivars. M.R. Enan, and A. Ahmed, Biology Department, College of Science, United Arab Emirates University, United Arab Emirates and Agricultural Research Center, Agricultural Genetic Engineering Research Institute, Giza, Egypt.

The Best Developmental Project:

1. Developing Date Palm Cultivation in the Jordan Valley (Palestine) since 2004 / Dr. Nasser Jaghoub & Eng. Faris Ahmed Zaki / Palestine.
2. Coachella Valley History Museum / USA

Distinguished Personality:

Prof. Jose Romeno Faleiro / India.

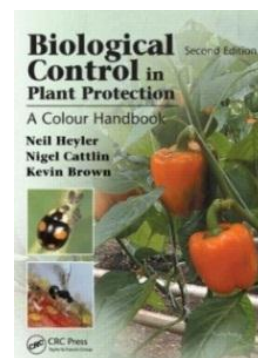
❖ Publications & New Books

NEW BOOKS

Biological Control in Plant Protection: A Colour Handbook, Second Edition. Neil Helyer, Nigel D. Cattlin, Kevin C. Brown (editors).

Includes a chapter on pest biology illustrated with photos of the pest and their damage to help the reader identify friend. Discusses many naturally occurring beneficial organisms as well as a diverse range of commercially produced organisms. Details various approaches to biological control and the current state of play. Contains more than 550 high-resolution color photographs and electron microscope images. Describes practical methods for establishing and maintaining beneficial organisms. Offers useful tips on monitoring and taking photographs with a cell/mobile phone. Presents two new chapters: The practice and application of biological control, Biological control in perspective.

<http://www.crcpress.com/product/isbn/9781840761177#googlePreviewContainer>



Publication of 12th edition of “Index phytosanitaire- Maroc 2015”

The new version of “Index phytosanitaire- Maroc 2015” contains information updated on all pesticides with agricultural use authorized in Morocco. It's a very useful reference table for farmers and all people working on plant protection.

SELECTED RESEARCH PAPERS

Molecular mapping of Asian soybean rust resistance in soybean landraces PI 594767A, PI 587905 and PI 416764. M.M. Hossain, H. Akamatsu, M. Morishita, T. Mori, Y. Yamaoka, K. Suenaga, R.M. Soares, A.N. Bogado, A.J.G. Ivancovich and N. Yamanaka. *Plant Pathology*, 64(1):147-156, 2015.

Multiple resistances across glufosinate, glyphosate, paraquat and ACCase-inhibiting herbicides in an *Eleusine indica* population. A. Jalaludin, Q. Yu and S.B. Powles. *Weed Research*, 55(1): 82-89, 2015.

Integrated effect of *Glomus mosseae* and selected plant oils on the control of bacterial wilt disease of tomato. Kamal A.M. Abo-Elyousr, Mohamed E.A. Seleim, Kenawy M.H. Abd-El-Moneem, Frag A. Saeed. *Crop Protection*, 66: 67-71, 2014.

Selection and characterization of *Bacillus thuringiensis* mutants over-producing δ -endotoxins. Hichem Azzouz, Fatma Daoud, Dalel benfarhat-Touzri, Slim Tounsi (Tunisia). *Journal of Stored Products Research*, 59: 82-87, 2014.

The control of isariopsis leaf spot and downy mildew in grapevine cv. Isabel with the essential oil of lemon grass and the activity of defensive enzymes in response to the essential oil. A.J. Maia, J.S.B. Oliveira, K.R.F. Schwan-Estrada, C.M.R. Faria, A.F. Batista, W.F. Costa, B.N. Batista. *Crop Protection*, 63: 57-67, 2014].

Elimination of grapevine Bois noir phytoplasma by tissue culture coupled or not with heat therapy or hot water treatment. L.Chalak, A.Elbitar, N. Mourad, C. Mortada, E. Choueiri. *Advances in Crop Science and Technology* 1: 107, 2013.

First report of Hop Stunt Viroid (HSVd) in Lebanese fig trees. T. Elbeaino, E.Choueiri, M. Digiario. *Journal of Plant Pathology*, 95: 218, 2013.

PAPERS PUBLISHED IN THE ARAB JOURNAL OF PLANT PROTECTION (AJPP) VOLUME 32, ISSUE 3, DECEMBER 2014

http://www.asplantprotection.org/ASPP_Journal-32-3_2014.html

BIOLOGY, ECOLOGY

- **Field study of some biological characteristics of the Dubas Bugg *Ommattissus lybicus* De. Bergevin in Aljalla date palm Oasis in Al-Bokamal city in Syria.** A. Basheer, H. Bilal and H.A. Ali (SYRIA) (Pages 193-200)
- **Survey and description of introduced *Eucalyptus*, and periods of its use as a source of pollen and nectar for honey bees, in Sweida, south of Syria.** M.H. Dawara, S. Sarboukh and A. Hatoum (SYRIA) (Pages 201-206)

BIODIVERSITY

- **Detection of the major groups of *Bemisia tabaci* Genn. spread on different hosts in Syria coastal based on random DNA indices.** A.M. Mouhanna, H. Barhoum, L. Assllan and A. Kassem (SYRIA) (Pages 207-218)

BIOLOGICAL CONTROL

- **Efficiency of some biological control agents on lesser date moth *Batrachedra amydraula* Meyrick in central Iraq.** J.K. Mohammad, R.F. Al-Jassani, A.A. Ali and M. El-Bouhssini (IRAQ & MOROCCO) (Pages 219-225)
- **Laboratory rearing of entomopathogenic nematodes on Mediterranean flour moth *Ephesia kuehniella* Zell.** A.M. Basheer, A.A. Jawish and K. Al-Assas (SYRIA) (Pages 226-233)

HOST RESISTANCE

- **Field Evaluation of promising chickpea genotypes reaction against *Ascochyta* blight disease.** O. Atik, M.M. Yabarak, A.A. Nasif, A. Katnaji and B. Attar (SYRIA) (Pages 234-240)

NATURAL ENEMIES

- **Survival and predation potential of the syrphid predator, *Episyrphus balteatus* DeGeer (Syrphidae: Diptera) when fed on the black bean aphid, *Aphis fabae* Scopoli. under laboratory conditions.** R. Almohamad and F. Aldabel (SYRIA) (Pages 241-245)
- **Antagonism between plant growth promoting rhizobacteria and *Fusarium oxysporum* f.sp. *lentis* Vasud. & Srin., the causal agent of vascular lentil wilt under laboratory conditions.** M. Ghanam, M.A. Nahlawi and S.E. Khabbaz (SYRIA) (Pages 246-253)

LOSS ASSESSMENT

- **Effect of *Citrus tristeza virus* infection on quality of Balady common orange and Satsuma fruits in Hraisoon, Syria.** R.B. Hamdan, J. Makhoul and I.D. Ismail (SYRIA) (Pages 254-259)

DETECTION

- **Production of polyclonal antiserum for a Syrian isolate of *Sweet potato feathery mottle virus* (SPFMV).** E.H. Akel, Sh. Sankary, Y. Abu-Ahmad, S. Al-Chaabi, and I.D. Ismail (SYRIA) (Pages 260-265)

SURVEY

- **Most important factors associated with pistachio trees decline and identification of causal prganisms in northern Syria.** A.R. Khafateh (SYRIA) (Pages 266-270)

NEW RECORD

- **New record of four species for the genus *Gryllotalpa* (Orthoptera: Gryllotalpidae) in Iraq.** R.F. El-Jassani and R.K.I. El-Jboory (IRAQ) (Pages 271-275)
- **First record of nematode root knot on *Zennia elegans* caused by *Meloidogyne javanica* plant in Erbil Governorate, Kurdistan Region, Iraq.** H.H. Ali, K.M. Fatah and A.I. Ahmed (IRAQ) (Pages 276-277)
- **First record of nine species of thrips (Insecta: Thysanoptera) in Qatar.** M. Mirab-balou, S.L. Yang and X.L. Tong (IRAN & CHINA) (Pages 278-282)

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

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

- **The effect of artificial swarming on Varroa mite population development.** N.Y. Daher-Hjaij and A.K. Alburaki (SYRIA).
- **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).
- **Characterization of seedling and adult-plant resistance to wheat yellow rust disease in some Syrian bread wheat cultivars.** H. Modarse, W. Al Said and K. Nazari (SYRIA & TURKEY).
- **Evaluation of the efficiency of some antagonistic fungi to control root-knot nematode *Meloidogyne incognita* on tomato.** M. Abdulkader and R. Mansour (SYRIA).

EVENTS OF INTEREST

2015

*** 03-06 May 2015**

The 5th International Congress of the Plant Protection Research Institute. Giza, Egypt.

plantprotection5@yahoo.com

*** May 11-14, 2015.**

7th meeting of the IOBC/wprs WG "Integrated Protection of Olive Crops", Kalamata, Greece.

<http://www.iobc-wprs.org/events>

***May 10-14 2015**

EFS13 - 13th European Fusarium Seminar. Martina Franca (TA), Italy.

<http://efs13.mycored.eu>

*** 7-11 June 2015**

III International Symposium on Postharvest Pathology: Using Science to Increase Food Availability.

Bari, Italy, <http://postharvestbari2015.it/>

*** 08-12 June 2015**

23rd International Conference on Virus and Other Graft Transmissible Diseases of Fruit Crops. Aiina

Center, Morioka, Japan. Contact: yoshikawa@iwate-u.ac.jp; Website: <http://icvf.jki.bund.de>

***13 -16 June, 2015**

5th Symposium on tomato Diseases, Málaga, Spain.

<http://www.tomatodiseases2016.es> Email: tomatodiseases2016@ihsm.uma-csic.es

*** 05-08 July 2015**

14th International Cereal Rusts and Powdery Mildews Conference, Copenhagen, Denmark.

<http://emcrf.au.dk/icrPMC2015/welcome-to-the-conference/>

*** 24–27 August 2015**

18th IPPC International Plant Protection Congress in Berlin, Germany.

The International Association for the Plant Protection Sciences (IAPPS) and German local organizations responsible for organizing this International Plant Protection Congress series, invite you to attend and contribute to this 18th international and multi-disciplinary congress on all aspects of plant protection in the exciting city of Berlin. The program of activities being developed jointly by the three German organizations (DPG, JKI and IVA) together with IAPPS is aimed to address many of the key issues faced by farmers, governments and plant protection scientists in meeting the challenge of designing and implementing appropriate and sustainable plant protection measures. <http://www.ippc2015.de>

*** 30 August – 03 September 2015**

5th Conference of the International Working Group on Legume and Vegetable Viruses (IWGLVV).

Haarlem, the Netherlands. <http://www.plant-virology.nl/IWGLVV2015>

* **21-25 September 2015**

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

* **19-22 October 2015**

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

* **14 November - 18 November, 2016**

9th Australasian Soilborne Diseases Symposium Heritage Hanmer Springs, Canterbury, New Zealand.

http://www.appsnnet.org/Interest_Groups/ASDS/asds.aspx

* **25-30 September 2016**

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

<http://ice2016orlando.org/>

* **29 July – 03 August 2018**

11th International Congress of Plant Pathology (ICPP2018) in Boston, Massachusetts, USA.

<http://www.icpp2018.or>

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