



ARAB AND NEAR EAST PLANT PROTECTION NEWSLETTER



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EDITORIAL

Endophytic Fungal Entomopathogens with Multiple Roles for Sustainable Agriculture

Since their discovery in the early 1800s, entomopathogenic fungi have been considered as important natural enemies of arthropods and mainly developed as biological control agents of insect pests. Yet to date, their employment for effective pest control has only been met with limited success, especially under field conditions. Recent studies indicate that fungal entomopathogens have the ability to form convoluted interactions with plants, the rhizosphere, microorganisms, and other natural enemies. Such novel discoveries urge us to switch to “a new paradigm” for using these fungi to manage multiple pests and enhance crop production. Accumulative evidence suggests that entomopathogenic fungi can colonize a wide array of host plants as endophytes, confer dual protection against insect pests and plant diseases, promote plant growth, persist in the rhizosphere, and act successfully in combination with other groups of biological control agents (e.g. parasitoids).

Even though most studies investigating the above-mentioned interactions have mainly focused on *Beauveria bassiana* (Balsamo) Vuillemin (Ascomycota: Hypocreales), other entomopathogens in the genera of *Beauveria*, *Metarhizium*, *Paecilomyces*, *Lecanicillium*, etc., have also been recently shown to act as endophytes and confer several benefits to plants including reduced pest damage and enhanced plant growth following their endophytic establishment. However, researchers in the field should realize the importance of the inoculation method as well as the inoculum rate they use for establishing fungal entomopathogens as endophytes and the subsequent benefits they might confer to their host plants. Several inoculation methods, such as foliar spray, soil drench, root dip, stem injection, and seed treatment, have been tested and implemented with different success rates. Furthermore, researchers should be aware of the differential expression of fungal genotype-plant genotype interactions in different environments; and thus have to only select promising endophytic fungal strains that are consistently-colonizing their plant hosts and capable of displaying superior performance under a wide range of practical environmental conditions. Indeed, having entomopathogenic fungi established in plants as endophytes may not only improve the delivery, efficacy and reliability of several commercially available mycopesticides based on fungal entomopathogens and applied in a conventional biocontrol manner; but could also allow for a multi-faceted utilization of these biocontrol agents for Integrated Pest Management (IPM) and sustainable crop production. To many scientists, “endophytic fungal entomopathogens with multiple roles for sustainable agriculture” might seem like an unrealistic goal or at least an enormous challenge. Nevertheless, a clearly defined interdisciplinary research approach will definitely make the challenge more manageable and the goal less remote.

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INVASIVE AND NEW PESTS

EGYPT

Two New Species of *Histiostoma* Kramer and *Caloglyphus* Berlese (Acari: Acaridida) from Citrus Orchards in Assiut, Egypt. The mite species affiliated to the Acaridida in Egypt is still far below the taxa discovered in other countries despite the description of many species and few genera especially in Upper Egypt. The current study focused on describing two new species pertaining to the families Acaridae (*Caloglyphus citrin.* sp.) and Histiostomatidae (*Histiostoma herballi* n. sp.) described herein as hypopi (heteromorphic deutonymphs) from soil and Bermuda grass in citrus orchards in Assiut, Egypt. [Eraky, S.A.; A.S. Abdelgayed; M.W. Negm; T.Y. Helal and S.F.M. Moussa.(Egypt), Assiut Journal of Agricultural Sciences 48(1): 182-190, 2017]

SAUDIA ARABIA

First Record of the Genus *Eucremastus* Szépligeti, 1905 (Hymenoptera: Ichneumonidae: Cremastinae) from the Arabian Peninsula, with the description of three new species. The genus *Eucremastus* Szépligeti, 1905 (Hymenoptera: Ichneumonidae: Cremastinae) is recorded for the first time for the Arabian Peninsula from the Kingdom of Saudi Arabia. The present study is based on specimens collected from Al-Khararah, Rawdhat Al-Harmalyiah, Rawdhat Al-Sabalh, Rawdhat Farshet Sheaal and Wadi Ghaihab (Riyadh region, Central of Saudi Arabia). Three new species, *E. arabicus* Gadallah & Soliman, *E. flavus* Gadallah & Soliman and *E. rufoantennalis* Gadallah & Soliman are described and illustrated. An illustrated key to species is also provided. [Gadallah, N.S., A.M Soliman, and H.M. Dhafer (Egypt/Saudi Arabia), Zootaxa 4216 (4): 339–354, 2017].

A Preliminary Account of the Fly Fauna in Jabal Shada al-A'la Nature Reserve, Saudi Arabia, with New Records and Bio geographical Remarks (Diptera, Insecta). The first list of insects of Al-Baha Province, Kingdom of Saudi Arabia (KSA) was published in 2013 and contained a total of 582 species; an addendum to this list was published in 2015 adding 142 species and bringing the total number recorded from the province to 724 insect species representing 17 orders. The previous two studies excluded Jabal Shada al-A'la Nature Reserve (SANR), so the present study in SANR, as belonging to Al-Baha Province, are complementary to the previous two. The present study presents a preliminary list of Diptera (Insecta) in SANR, with remarks on their zoogeography, and is the first of a series of planned ecological and systematic studies on different insect orders as one of the outputs of a project proposed to study the entire insect fauna SANR. A total number of 119 Diptera species belonging to 87 genera, 31 tribes, 42 subfamilies, and representing 30 families has been recorded from SANR in the present study. Some species have been identified only to the genus level and listed herein only because this is the first time to record their genera in KSA. Fourteen of the species are recorded for the first time for KSA, namely: *Forcipomyia sahariensis* Kieffer, 1923 [Ceratopogonidae]; *Chaetosciara* sp. [Sciaridae]; *Neolophonotus* sp.1; *Neolophonotus* sp.2; *Promachussinaiticus* Efflatoun, 1934; *Saropogon longicornis* (Macquart, 1838); *Saropogon* sp. [Asilidae]; *Spogostylumtripunctatum* (Pallas in Wiedemann, 1818) [Bombyliidae]; *Phycus* sp. [Therevidae]; *Hemeromyia* sp.; *Meoneura palaestinensis* Hennig, 1937 [Carnidae]; *Desmometopa inaurata* Lamb, 1914 [Milichiidae]; *Stomoxys niger* Macquart, 1851 [Muscidae]; and *Sarcophaga palestinensis* (Lehrer, 1998) [Sarcophagidae]. Zoogeographic affinities of recorded fly species suggest a closer affiliation to the Afrotropical region (46%) than to the Palearctic region (23.5%) or the Oriental region (2.5%). This supports the previous studies' conclusions and emphasizes the fact that parts of the Arabian Peninsula, including Al-Baha Province, ought to be a part of the Afrotropical Region rather than of the Palearctic Region or the Eremic Zone. [Magdi S. El-Hawagry, Mahmoud S. Abdel-Dayem, Ali A. Elgharbawy, Hathal M. Al Dhafer (Egypt/Saudi Arabia), ZooKeys 636: 107-139,2016].

TUNISIA

First Report of the Plant-Parasitic Nematode *Tylenchorhynchus mediterraneus* on Olive Trees in Tunisia. Nematological analyses of soil samples collected from two olive orchards at Chott-Mariem (Center East Tunisia)

and Sbiba (Center Tunisia) showed the presence of the stunt nematode *Tylenchorhynchus mediterraneus* that has been recently described in some cultivated and native plants in Southern Spain. The morphological and morpho-biometric studies of the Tunisian populations confirmed the species identification. Phylogenetic analysis based on nuclear ribosomal DNA genes (D2-D3 expansion segments of large ribosomal subunit 28S, and internal transcribed spacer 1 or ITS1) confirmed the species identification. Further work must be performed to test the pathogenicity of this plant-parasitic nematode on olive trees. To the best of our knowledge, this is the first report of this nematode in Tunisia, and the extend of its geographical distribution to North Africa.[Guesmi, I., Hadj-Naser, F., Horrigue-Raouani, N., Cantalapiedra-Navarrete, C., Palomares-Rius, J.E., and Castillo P. (Tunis), *Tunisian Journal of Plant Protection* 11: 171-177,2016].

YEMEN

First Record of the Pepper tree psyllid, *Calophya schini* Tuthill (Homoptera:Calophyidae) in Yemen. The

presence of the Peppertree psyllid, *Calophya schini* Tuthill (Homoptera:Calophyidae) was reported for the first time in Yemen. It was collected off the Pepper tree, *Schinus molle* Linnaeus (Anacardiaceae) in the Faculty of Agriculture, Sana'a University, during a survey conducted in September 2012 by the first researcher. Infestation ratio reached approximately 10%. Inspect of its damage being gradually increased on the Pepper tree, *S. molle* in the Faculty of Agriculture, Sana'a University and subsequently spread through regions of Sana'a capital, this study was conducted during the period from September 2016 until March 2017 at several localities in Sana'a. The results revealed that the Peppertree psyllid, *Calophya schini* was found to spread with a highly manner to other localities in Sana'a like Haddah, Al-Daeri, Al-Safyia, Al-Sabeen, Al-Hasabah, and etc. The highest Insect Severity (82.29%) was recorded on Pepper tree, *Schinus molle* at the Faculty of Agriculture, Sana'a University at the end of February 2017, whereas the lowest Insect Severity (70.67%) was found on Pepper trees in zoo at Dar-Salm region. Although the ratio of infestation for both was 100%. The Peppertree psyllid, *Calophya schini* is the most important insect on Pepper tree, *Schinus molle* in Yemen due to its being attacks the leaves and finally destroyed them. This species seems to only attack the Pepper tree, *Schinus molle* Linnaeus, and does not attack the congeneric Brazilian pepper tree, *Schinus terebinthifolius* Raddi, which is also extensively planted throught the state of of California. Damage is caused by the nymphal stage. Adults deposit their eggs on the fresh growing tips, and the nymphs settle and form deep pits, which can deform and discolor leaves and cause distortion of twiglets and even disfigured trees (Fig. 1). In warmer climates, reproduction and all life stages can occur throughout the year. Whereas in Sana'a capital noticed that the Peppertree psyllid, *Calophya schini* was began the reproduction in the beginning of September2016. The adults were seen at the middle of December 2016, then gradually increased to reach to the highest level in 28/2/2017, and when the twiglets were shaken the adults are flying with a numerous to the air and even to the people. [Hassan Sulaiman Ahmed Mahdi and Sara Qaid Mohammed Althobhani (Yemen), Plant Protection Department, Faculty of Agriculture, Sana'a University, Yemen, 2017].

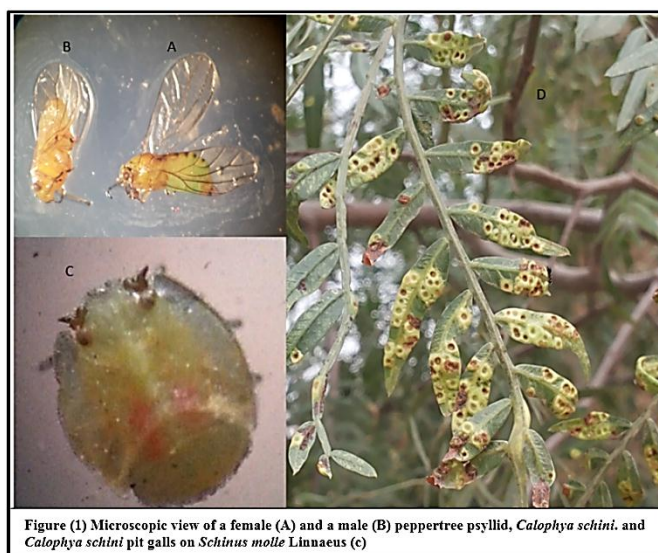


Figure (1) Microscopic view of a female (A) and a male (B) peppertree psyllid, *Calophya schini*, and *Calophya schini* pit galls on *Schinus molle* Linnaeus (C)

Although the ratio of infestation for both was 100%. The Peppertree psyllid, *Calophya schini* is the most important insect on Pepper tree, *Schinus molle* in Yemen due to its being attacks the leaves and finally destroyed them. This species seems to only attack the Pepper tree, *Schinus molle* Linnaeus, and does not attack the congeneric Brazilian pepper tree, *Schinus terebinthifolius* Raddi, which is also extensively planted throught the state of of California. Damage is caused by the nymphal stage. Adults deposit their eggs on the fresh growing tips, and the nymphs settle and form deep pits, which can deform and discolor leaves and cause distortion of twiglets and even disfigured trees (Fig. 1). In warmer climates, reproduction and all life stages can occur throughout the year. Whereas in Sana'a capital noticed that the Peppertree psyllid, *Calophya schini* was began the reproduction in the beginning of September2016. The adults were seen at the middle of December 2016, then gradually increased to reach to the highest level in 28/2/2017, and when the twiglets were shaken the adults are flying with a numerous to the air and even to the people. [Hassan Sulaiman Ahmed Mahdi and Sara Qaid Mohammed Althobhani (Yemen), Plant Protection Department, Faculty of Agriculture, Sana'a University, Yemen, 2017].

First Record of the Cochineal Insect, *Dactylopius coccus* (Costa) (Homoptera:Dactylopiidae) in Yemen. In this study, the infested cladodes of prickly pears (*Opuntia dillenii* (Ker-Gawl)) was obtained from Al-Aman district of Hajjah governorate by Ahmed Ahmed Thybah and Abdullah Nasher Murshed Moqbel, while the identification and classification of the insect and the prickly pears plant was done by Hassan Sulaiman Ahmed Mahdi. Also the first researcher was conducted a field survey for insect in some areas on the Sana'a-Al-Hodiedah road, in addition to the laboratory study to test the ability of this insect to infest *Opuntia ficus-indica* (L.) plant which is the most consumption in Yemen rather than the other variety with assistance by Abdullah Ahmed Mohammed Batheeb and Mohammed Ahmed Moqbel Alshogari. The Field surveys revealed that the cochineal insect, *Dactylopius coccus* Costa, 1835 (Homoptera:Dactylopiidae) in the beginning of November 2016, was found to infest an exotic prickly

or cactus pears (*Opuntia dillenii* (Ker-Gawl)) in prickly pears natural farms located in Al-Aman district of Hajjah governorate, in addition to its damage on the same plant in some areas on Sana'a-Al-Hodiedah road beside Manakha district during 19/1/2017. About 10% of the inspected prickly pears (*O. dillenii*) in this area were destroyed by *D. coccus*. This is the first record of *Dactylopius coccus* (Costa) in Yemen (fig.1), The cochineal insects are a small batch of which-unique amongst all coccoids-have twice been in the limelight of economic entomology: first as real or supposed sources of a dyestuff, and later as actual or potential agents for the control of certain pest species of *Opuntia* or prickly pears. The origin and date of introduction of *Opuntia dillenii* into Yemen is not known. The plant height ranges from 1.5 meters to 3 meters, the flowers are light yellow and the fruits that are purple to violet colored pear shaped, have a red colored juice and a less desirable taste rather than the other varieties (*Opuntia ficus-indica* (L.) and *Opuntia ficus-indica inermis*). *Opuntia dillenii* grows mainly in the western and central highlands at altitudes between 350-2000 meter above sea level. Cochineal insects are sap-sucking insects that feed only on cactus species (plants within the family Cactaceae). There are nine species of cochineal insects, and each species feeds on only one or a few related species of cactus. The laboratory study was conducted at the insect laboratory of Faculty of Agriculture, Sana'a University, during the period from 1/11/2016 to 28/11/2016. Every plastic pot was grown with one cladodes of *Opuntia ficus-indica*, which were taken from the faculty instructional farm. Infested pieces of cladodes of *Opuntia dillenii* plant with intensity of cochineal insect colonies (*Dactylopius coccus*) were put on the cladodes of *Opuntia ficus-indica*. Some individuals of *Dactylopius coccus* significantly moved to the cladodes of *O. ficus-indica* plants, but it does not develop their colonies on this plant. During two weeks all the individuals were died. Whereas the colonies of cochineal insect on the cladodes of *Opuntia dillenii* plants were still survival during the whole time of the experiment period. This study was conducted under laboratory conditions ($21\pm 2^{\circ}\text{C}$, and $43\pm 13\%\text{R.H.}$) during the day. These results have agreed with that result which was recently discovered that there are host-specific races or biotypes within some of the species of cochineal insects, and that each biotype can only develop on one cactus species, although the different biotypes look exactly identical. [Hassan Sulaiman Ahmed Mahdi, Abdullah Nasher Murshed Moqbel, Abdullah Ahmed Mohammed Batheeb, Mohammed Ahmed Moqbel Alshogari, and Ahmed Ahmed Thybah (Yemen), Plant Protection Department, Faculty of Agriculture, Sana'a University-Yemen,2017].

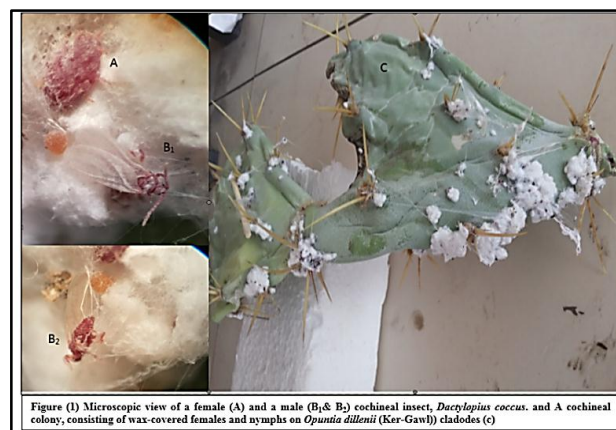


Figure (1) Microscopic view of a female (A) and a male (B₁& B₂) cochineal insect, *Dactylopius coccus*, and A cochineal colony, consisting of wax-covered females and nymphs on *Opuntia dillenii* (Ker-Gawl) cladodes (C)

RESEARCH HIGHLIGHTS

EGYPT

Phytophagous and Predatory Mites Inhabiting Citrus Trees in Assiut Governorate, Upper Egypt. Mites play an important role in citrus production whether as pests or beneficial predators. Based on published works, about 149 identified mite species representing 39 families were previously reported from citrus orchards in Egypt. Field surveys were conducted fortnightly from October 2014 to February 2016 in twenty-eight citrus orchards of eight districts in Assiut Governorate, Egypt to determine the species composition of phytophagous and predatory mites. In addition, the incidence and distribution of the most important species were reported. Samples were taken from plant leaves, buds and fruits. The citrus brown mite, *Eutetranychus orientalis* (Klein, 1936) (Tetranychidae), the red and black flat mite, *Brevipalpus phoenicis* (Geijskes, 1939) (Tenuipalpidae) and the broad mite, *Polyphagotarsonemus latus* (Banks, 1904) (Tarsonemidae) seemed to be the most common phytophagous species found in citrus orchards. Several predatory mite species of numerous families were also recorded, of these, *Amblyseius swirskii* Athias-Henriot, 1962; *Typhlodromus (Typhlodromus) pyri* Scheuten, 1857 (Phytoseiidae) and *Agistemus exsertus* González-Rodríguez, 1963 (Stigmaeidae) were found to be the most abundant predatory species inhabiting the leaves of mandarin, lime and orange, while *Cheletogenes ornatus* (Canestrini and Fanzago, 1876) and *Hemicheyletia bakeri* (Ehara, 1962) (Cheyletidae) were observed mostly on the fruits. Quantifying the presence of various predatory species inhabiting citrus trees will be an important step for pest mite's control. In subsequent studies these predators can be used in biological control programs. [Abdelgayed, A.S.; M.W. Negm; S.A. Eraky; T.Y. Helal and S.F.M. Moussa(Egypt), Assiut J. Agric. Sci., 48 (1): 173-181, 2017].

Geographical Distribution of *Tuta absoluta* (Meyrick 1917) (Lepidoptera; Gelechiidae) in Iraq and Assessment of the Efficiency of some Biorational Pesticides. Geographical distribution of *Tuta absoluta* was studied from September 2010 as the insect enter Iraq via tomato fruits imported from Syria to Mosul city to November 2011 under open field and green houses conditions. The infestation percent decreased in 2012 - 2013 compared to 2010 Due to big variation in temperature and relative humidity ,insect adaption to Iraqi environment ,and l or shrinking of growing areas owned by most tomato farmers as a major host .The results of some biorational pesticides efficacy of *T. absoluta* larvae of 15 days post spraying showed that Oxymatrine 2.4% SI (50 ml/ 100 l water) came first with 91% efficacy , followed by Proclaim (75 ml/ 100 l water) at 90% and chemical pesticides Avaunt (50 ml/ 100 l water) at 89%. However, Oxymatrine 2.4% SI (100 ml/ 100 l water) showed the lowest efficacy at 71% only. [Amal S. Abdrazak, Hasanien Y. Abd –Alraheem, Samer A. Hassan, Abas F. Mustafa, Aseel A. Al-Ali, Shihab A. Abas, Ali K. Mohammed. (Iraq), Iraq Academic Scientific journal, 22(1), 2017

Ecological Sound Control Strategies for Population Suppression of Date Palm Borers *Oryctes* spp. Cultural practices, hand collection of larvae, light traps and entomopathogenic fungi were investigated to manage of palm borers *Oryctes* spp. in date palm orchards during the years 2010-2015. Cultural practices, such as sanitation and pruning frond bases, hand collection of larvae during regular annual service work and light traps with solar energy were practiced annually in one orchard for five years. In the second orchard, cultural practices were applied for two years, light trap for one year only, and no hand collection of larvae was done during the period. The third orchard was use as a control treatment. Results showed reduction in population density of larvae and adult of *Oryctes* spp. of 91.6%, 53.0% and 76.1%, 41.1% in the 1st and 2nd orchard, respectively. The results also demonstrated the impact of moon light phases on the number of *Oryctes* spp. adults caught by light trap and the existence of an inverse relation between moon light and flight activity of adults. Biological experiments also revealed that entomopathogenic fungi can cause high mortality rate reaching 100% after 29 d. *Beauveria bassiana* scored higher mortality rate in short time, especially at concentration of 1×10^{11} conidia/mL with LT50 = 12.75 and LT90 = 20; while, *Metarhizium anisopliae* caused the higher percentage of malformed adults. The results depicted the effectiveness of some integrated ecological sound control methods for monitoring and population suppression of *Oryctes* spp. in date palm orchards.[Mohammed Zaidan Khalaf, Hussain Fadhel Alrubeai, Mohammed Waleed Khudhaer and Aysar Abdulkarem Abdulhusein (Iraq),Journal of Agricultural Science and Technology A 7 :18-24, 2017]. doi: 10.17265/2161-6256/2017.01.003

Innovative Method to Control Dubas Bug, *Ommatissus lybicus* (Deberg) (Homoptera: Tropiduchidae) in Date Palm Orchards Using Endophytic *Beauveria bassiana* Isolates. The main objective of this study was to investigate the presence of natural endophytic *Beauveria bassiana* within date palm tissues using molecular technique and measure their field efficacies in controlling Dubas bug, *Ommatissus lybicus* (Deberg). Two entomopathogenic *B. bassiana* isolates (MARD 108 and 100) were isolated from date palm, *Phoenix dactylifera* L. leaves; in addition, one isolate (MARD 92) originally from soil was identified to have endophytic property. Concentration of 1×10^9 conidia/mL of each of three endophytic isolates was used in field experiments targeting Dubas bug nymphs via injection tree trunks. The results indicated that the high mortality rates reached 92%, 96% and 100% with infliction of the three endophytic isolates after 15 d from the treatment. The successful establishment of the fungal isolates in the date palm tissue was determined using *B. bassiana* species-specific primer for the first time via using conventional polymerase chain reaction (PCR) amplification technique before and after injection, and the positive gel band representation was the identification signs. The novel results depicted for the first time the presence of natural endophytic *B. bassiana* isolates within date palm tissues and their field efficacies in controlling Dubas bug, *O. lybicus* (Deberg) infestation.[Mohammad Waleed Khudhair, Hussain Fadhel Alrubeai and Mohammad Zaidan Khalaf (Iraq), Journal of Agricultural Science and Technology A 6 :394-402, 2016]. doi:10.17265/2161-6256/2016.06.004

Efficiency of Attract and Kill Bait Stations "Ceranock" for Controlling of Mediterranean Fruit Fly, *Ceratitis capitata* on Citrus In Iraq. Field experiment was conducted to evaluate of control to Medfly *Ceratitis capitata* by using technique of attract and kill "Ceranock" in citrus orchard (4 acres) in Naomania, Wasit Province, Iraq during the season of 2014. Bait stations were hung in trees with height 1.5-2 m, according of 50-bait stations/acre with area 2 acres. While, the rest area leaved without application for comparison. Results indicated that using Ceranock stations decreased the population density of males and females by 79% and 83% respectively as a comparison with control. Results showed that using this technique leads to reduction of fruit injuries percentage of Orange *Citrus sinensis*,

locally Mandarin *C. reticulata*, Clementine Mandarin *C. reticulata* and Sour orange *C. aurantium* by 93%, 87%, 86% and 66% respectively. The results of this study demonstrate clearly the efficiency of attract and kill bait stations "Ceranock" as a control method for Medfly on citrus orchards. [Amer J. Al-Gerrawy (Iraq), Waist University,9(2):92-98, 2016].

SYRIA

Population Dynamics of Grape *Phylloxera*, *Phylloxera vitifoliae* in Some Vineyards in Two Regions, Massad and Rhasas in Alsweda Governorate. Population dynamics of root grape *Phylloxera*, *Phylloxera vitifoliae* Fitch. (Homoptera: Phylloxeridae) was carried on *Vitis vinifera* L., cv. Al-Hulwani grafted on B41 and Ruggeri 140 rootstocks at two regions, Massad and Rhasas in Alsweda governorate during 2014-2015 seasons. The results showed that the density of different stages of insect vary among rootstock in the same region, and vary by region on the same rootstock. The highest *Phylloxera* population density was during the period between July and August according to the rootstock in the same region, and according to the region for the same rootstock. The average general *Phylloxera* population density on rootstock B41 (111.75 ± 15.3) was higher than on rootstock Ruggeri 140 (60.4 ± 18.0). The insect diapauses as first or second nymph in stars. [Abdulnabi Basheer, Wajih Al-Kessiss, Basel Al-Shadidi (Syria), Accepted for publication in the Agricultural sciences Damascus University, 2017].

Influence of Soil of Grape *Phylloxera* *Phylloxera vitifoliae* in Some Vineyards in Two Regions Massad and Rhasas in Alsweda Governorate .The effect of soil on Grape *Phylloxera vitifoliae* was evaluated on commercial Grape varieties grafted on B41 and rojory 140 rootstocks, during May–November 2015 in tow regions of Suwieda state (Massad and Rhasas). Soil analysis has been conducted at soil fertility lab (faculty of agriculture Damascus university), the results showed that soil texture was clay in different under study soil levels and the clay percentage was increased with soil depth, *Phylloxera vitifoliae* pest caused serious damage to grape trees which has been grown in soil with high clay levels, a correlation between humic matter percentage, population density average and total death percentage of different insect stages has been recorded, where is the high level of organic matter (humic matter) at the three levels of soil of Rhas region lead to increase the average of insect death percentage and decreased the insect stages relative population density compared with Msad region results. soil pH, Organic carbons content and soil texture has impact on grape *Phylloxera vitifoliae* infest, a negative correlation between soil PH and infest density has been recorded (pH range 5 to 7.5), in contrast the number of swollen increased as the clay and humic soil content increased, moreover a negative influence of sand and carbonate soil content on infest density was recorded and a high level of correlation between infest density and nutrient availability like phosphor(P), potassium (K), Magnesium (Mg), copper (Cu) and zinc (Zn), the results showed high levels of infest density with any deviation (increase or decrease) of potassium (K) and Magnesium (Mg) in deep soil levels.[Abdulnabi Basheer, Wajih Al-Kessiss, Basel Al-Shadidi (Syria), Accepted for publication in The Arab Journal for Arid Environments, 2017]

Susceptibility of Adult Stage of Potato Tuber moth *Phthorimaea operculella* to native Isolates of *Beauveria bassiana*. The pathogenicity of three isolates of the fungus *Beauveria bassiana* (Bals.) Vuill were evaluated on potato tuber moth *Phthorimaea operculella* (Zeller) (Lepidoptera: Gelechiidae). These isolates taken from Latakia (isolate B), ICARDA spt273 (isolate C) and Damascus (isolate D). After germination test; three concentrations 1×10^4 , 1×10^5 , and 1×10^6 conidia / ml were used for each isolate. The experiment was carried out by spraying spore suspension on adults under laboratory condition ($28 \pm 2^\circ\text{C}$ and relative humidity $40 \pm 5\%$). Results showed that mean of cumulative mortality reaches 100% at the 6th-8th day after treatment with 10^6 conidia/ml for all tested isolates, No significant differences were observed between studied isolates with this concentration. While differences were existed between the control and each isolate, the control realized mean of cumulative mortality reaches 30% at 6th day and 66.6% at 8th day. The LC50 values were 2.2×10^4 conidia/ml for isolate B, and 2.12×10^5 conidia/ml for isolates D and C. LT50 did not exceed 4 days when 10^6 conidia/ml was applied from the isolates D and C, while the lowest value of the fifty lethal time is 1.16 days for isolate B at the same concentration. [Nisreen Alsaoud, Doummar Nammour, Ali Yaseen Ali (Syria), Al-Baath magazine, 38:14, 2016].

Study the Effect of Some Insecticides on Tomato Leaf Miner, *Tuta absoluta* Meyrick (Lepidoptera: Gelechiidae). The study aimed to determine the effect of insecticide Methomyl and Acetamiprid and Emamectin benzoate on the tomato leaf miner *Tuta absoluta* Meyrick after 1, 3, 7, 14 days of spraying pesticides on tomatoes,

according to the recommended usage rates by the manufacturer for use in the field. In Ayoba mothers center in Kenitra 2015. The results indicated that the use of pesticides has reduced significantly the number of live larvae of *T. absoluta* compared to the control from the first day after the treatment. Significant difference was found between acetamiprid and the both of insecticides methomyl and emamectin benzoate after 1 and 3 days after spraying, and the effectiveness of acetamiprid was the least reached only 65%. The effectiveness of the pesticide increased after 7 days of spraying, it was 75%, 78.4%, 80% for methomyl, acetamiprid, emamectin benzoate, respectively. Emamectin benzoate was the best after 14 days of treatment, where its effectiveness amounted to 84.2%. [Rida Hosain Haifaa Al sayeda Abdalnabi Basheer (Syria), Damascus University Journal for the Agricultural Sciences, 2017]. Accepted for publication

Study the Effect of Some Insecticides on the Whitefly, *Bemisia tabaci* Gennadius (Hemiptera: Aleyrodidae). The study aimed to determine the effect of insecticides, Deltamethrin, Pymetrozine and Imidacloprid on the whitefly *Bemisia tabaci* Gennadius after 1, 3, 7, 14 days of spraying on tomato, according to the recommended usage rates by the manufacturer for use in the field, In Tranjh mothers center, Alamal farms site field in Kenitra 2015. The results indicated that the use of pesticides has reduced the number of live insects of whitefly significantly compared to the control from the first day after treatment. While no significant differences in the number of live insects of whitefly when treated with different insecticides after 1,3,7 days of spraying. But after 14 days of spraying significant differences appeared where the numbers of live insects as follows 88.33, 43, 38.67 when treated with deltamethrin, Pymetrozine and imidacloprid, respectively. The efficacy of insecticides on the whitefly was as follows 80%, 78%, 47.5% of Pymetrozine, imidacloprid and deltamethrin, respectively. [Rida Hosain Haifaa Al Sayeda Abdalnabi Basheer (Syria), Damascus University Journal for the Agricultural Sciences, 2017(in press)]

Colonization of the Fig Stem Borer *Batocera Rufomaculata* (De Geer, 1775) Fig Trees at the Coastal Area in Syria. This study was carried out at the coastal area in Syria, to determine the geographic distribution of fig stem borer *Batocera rufomaculata*, infestation, host susceptibility and the human factor for dispersal of the borer, the results showed that the borer is presented in all the locations and the infestation ranged from 70.2% to 85.34%. The mortality of trees was the highest in the Thorah- nursery (47.61%) and just 13.3% in Wadi-alshater location. Our findings demonstrated that, the number of dead trees with diameter more than 20cm increased significantly toward that trees with less diameter. The results accounted that, the human factor had a big role to dispersal of the borer, wherever no control managements against the pest were used. Our results indicated that, *B. rufomaculata* was the main reason for reduce of fig production, therefore further researches are required to find the best ways to control this destructive pest. [Ali Yaseen Ali, Ahmad Ahmad, Jafer Amar (Syria), Jordan Journal of Agricultural Sciences, 12(4): 1333-1341, 2016].

Molecular Characterization of *Pythium* spp. Isolated from Tomato Seedlings in the Syrian Coast. Tomato seedlings damping-off is a limiting factor in commercial greenhouse production. To determine the causal agents of disease, sampling and fungal isolation were performed during 2012. Samples were collected from infected seedlings growing in greenhouses in the Syrian coastal region. Isolation of fungi was done in the laboratories of the Agronomical Research Center, in Lattakia and the molecular analyses were done in the Biotechnology Center at Tishreen University, Lattakia, Syria, during the years 2012, 2013. Eight isolates of *Pythium* sp. obtained were purified using hyphal tip method (named P1, P2, P3, P4, P5, P6, P7 and P8). Isolates were morphologically identified by optical microscope, then molecularly Characterized using genus specific ITS primers. The results of morphological characterization of pathogenic species suggested the detection of *Pythium aphanidermatum*, *P. ultimum*. The analysis of DNAs from the different isolates with ITS primers, recognizing the inter transcript spacer of nuclear ribosomal DNA proved that the eight, isolates were belonging to the species *P. ultimum*. The complete sequences of ribosomal DNA internal transcribed spacers regions of selected isolates were determined and submitted to GenBank. The GenBank-BLAST homology search revealed *P. ultimum* as the most similar sequence (> 96% identity) with GenBank entry AB355596. [Mohamad Imad Khreibeh, Wafaa Choumane, Ibtissam Ghazal and Fawaz Azmeh (Syria), Journal of Life Sciences, 9:449-455, 2015]. doi: [10.17265/1934-7391/2015.09.007](https://doi.org/10.17265/1934-7391/2015.09.007)

Testing the Efficiency of Some Fungal Isolates and Bacteria in the Inhibition of the Growth of Some of the Causative Fungi of Roots Rots of Grains and Legumes. The roots rot diseases cause losses in production that can reach up to 50% or more in grain and legume production. In the recent years, root rots became one of the most important disease problem in various wheat, lentil and chickpea growing areas in Syria. Their proliferation is increasing due to the difficulty in controlling them with chemicals, to poorly trained farmers and to an absence of crop rotation from year to year, especially for wheat. Therefore, it is necessary to search for suitable and alternatives

harmless to the environment and human to control the diseases, such as resistant varieties and biological control of fungal and bacterial diseases. In order to obtain healthy and safe products, international organizations are concerned about food security and consumer protection. Research was implemented in the year 2011 at the Agricultural Research Center in al-Qamishli in northeastern Syria, at an altitude of 452 m above sea level in length 41.13° east longitude, latitude 37.03° north. Average annual rainfall is about 440 mm with clay soils Lomé, with a proportion of mud between 54% and 24% silt and sand 22%, pH = 7.2. The effectiveness of five isolates belonging to the genus *Trichoderma* isolated from soil in the study area and one bacteria belonging to the genus *Bacillus* (Bs10) was tested. Two isolates belong to the species *Trichoderma viride* (TrV4 and TrV5) and three isolates belong to the species *Trichoderma harzianum* (TrH1, TrH2 and TrH3). Inhibition of the growth of the pathogenic fungi *Fusarium culmorum*, *F. oxysporum*, *F. moniliformum*, *F. avenaceum*, *Helminthosporium sativum*, *Alternaria tenuis*, and *Rhizoctonia solani*, originally isolated from the infected roots of wheat, lentils and chickpeas, was tested. Mycelial plugs of 0.5 cm diameter from each biological control isolate has been deposited 3 cm apart of the pathogenic fungus on a Petri dish, and 3 Petri dishes for each isolation was inoculated. In order to study the bacterial antagonism, a bacterial spore suspension at 10^7 spore/ml was added at a rate of 10 ml to 1 l PDA before hardening. Three plugs of each fungal isolates were placed in the Petri dishes. The plates were placed in an incubator at a temperature of $25 \pm 2^\circ\text{C}$ for a period of 9 days. The growth of the mycelium was assessed as diameter of colony based on a 1-5 scale:

- 1 Mycelium of the biocontrol fungus covers the entire space.
- 2 Mycelium of the biocontrol fungus covers two thirds of the space.
- 3 Mycelium of the biocontrol fungus covers half the space.
- 4 Mycelium of the biocontrol fungus covers one-third of space.
- 5 Mycelium of the pathogenic fungus covers the entire area.

The results indicated that the biocontrol fungal isolates led to the inhibition of the isolates of *Fusarium* spp. but did not affect the growth of other fungal isolates. The biocontrol isolates did not show any efficacy toward *Alternaria tenuis*, *Rhizoctonia solani*, while the bacterial isolate led to the inhibition of the growth of all fungal isolates tested, with *Fusarium* spp. the most inhibited and *Alternaria tenuis* the least inhibited and a significant reduction of the production of fungal spores compared to the control. [Omran Youssef, *General Commission for Scientific Agricultural Research (GCSAR), Plant protection, Syria, (The XIV Meeting of the IOBC-WPRS Working Group Biological Control of Fungal and Bacterial Plant Pathogens, Biocontrol and Microbial Ecology, 12–15 September 2016 • Berlin)*].

SAUDIA ARABIA

Comparative Efficacy of Different Approaches to Managing *Meloidogyne incognita* on Green Bean. A greenhouse study was conducted to compare the relative efficacy of different approaches to managing *Meloidogyne incognita* on green bean. These approaches included chemical (fumigant, non-fumigant, seed dressing, and seed dip), biological (the egg-parasitic fungus, *Paecilomyces lilacinus* and the mycorrhizal fungus *Glomus* sp.), physical (soil solarization), and cultural (chicken litter and urea) methods. Accordingly, nine different control materials and application methods plus nematode-infected and non-infected controls were compared. Two important parameters were considered: plant response (plant growth and root galling) and nematode reproduction (production of eggs and the reproduction factor Rf). The results showed that the use of chicken litter as an organic fertilizer severely affected the growth and survival of the plants. Therefore, this treatment was removed from the evaluation test. All of the other eight treatments were found to be effective against nematode reproduction, but with different levels of efficacy. The eight treatments decreased (38.9–99.8%) root galling, increased plant growth and suppressed nematode reproduction. Based on three important criteria, namely, gall index (GI), egg mass index (EMI), and nematode reproduction factor (RF), the tested materials and methods were categorized into three groups according to their relative control efficacy under the applied test conditions. The three groups were as follows: (1) the relatively high effective group (GI = 1.0–1.4, Rf = 0.07–0.01), which included the fumigant dazomet, the non-fumigant fenamiphos, soil solarization, and seed dip with fenamiphos; (2) the relatively moderate effective group (GI = 3.4–4.0, Rf = 0.24–0.60), which included seed dressing with fenamiphos and urea; and (3) the relatively less effective group (GI = 5.0, Rf = 32.2–37.2), which included *P. lilacinus* and *Glomus* sp. [Ahmad S. Al-Hazmi, Ahmed A.M. Dawabah, Saleh N. Al-Nadhari, Fahad A. Al-Yahya (Egypt/Saudi Arabia), *Saudi Journal of Biological Sciences* 24: 149-154, 2017].

A Review of Subtribe Cymindidina Laporte, 1834 (Coleoptera: Carabidae: Lebiini) in Southwestern Saudi Arabia, with descriptions of two new species. The carabid subtribe Cymindidina Laporte, 1834 is reviewed for the southwestern Saudi Arabia. Five species belonging to two genera (*Afrotarus Jeannel*, 1949 and *Cymindis Latreille*,

1806) are studied, including two species described as new: *A. fadli* sp. n. from Baha Province and *A. soudaensis* sp. n. from Asir Province. A key to genera and species of Saudi Arabia is given. [Rasool, I., R.F. Felix, M.S. Abdel-Dayem and H.M. Aldhafer (Saudi Arabia), *Zootaxa* 4236 (1): 157–171, 2017].

The Beetle Fauna (Insecta, Coleoptera) of the Rawdhat Khorim National Park, Central Saudi Arabia. This study was conducted as a part of a comprehensive baseline survey of insect biodiversity of Rawdhat Khorim National Park (RKNP), Central Kingdom of Saudi Arabia (KSA). During this study a total of 262 Coleoptera species belong to 182 genera in 35 families were identified, of which 247 are named at a species level. Fifteen species (6.0%) are apparently endemic to KSA. Thirty-eight species are new to the known beetle fauna of KSA, including 25 species reported from the Arabian Peninsula for the first time. The families Tenebrionidae (45 species), Scarabaeidae (34 species), and Carabidae (27 species) were the most species rich families. About 37% of the beetle abundance was represented by species of Scarabaeidae, especially *Aphodius ictericus ghardimaouensis* Balthasar. *Karumia inaequalis* Pic (Dascillidae) was also an abundant species. Approximately 43.5% of beetle species collected during this study are considered very rare taxa in RKNP. The RKNP beetle fauna shows more affinity to Sahro-Arabian (36.4%), Afrotropical-Sahro-Arabian (17.4%) and Palaearctic-Sahro-Arabian (10.5%). Twenty-three species (9.3%) are considered cosmopolitan or sub cosmopolitan. The data on month of collection, method of collection, and abundance status within RKNP, together with the distribution within KSA and the general distribution (zoogeography) of each species are presented. [Mahmoud S. Abdel-Dayem, Hassan H. Fadl, Ashraf M. El-Torkey, Ali A. Elgharbawy, Yousif N. Aldryhim, Boris C. Kondratieff, Amin N. Al Ansi, Hathal M. Aldhafer(Saudi Arabia), *ZooKeys* 653: 1–78, 2017].

Effects of Seedling Age and Root Wounding on the Charcoal Rot/Root-Knot Disease Complex on Green Bean. The effects of seedling age at inoculation and the mechanical wounding of roots on the development and severity of the disease complex caused by the interaction between *Macrophomina phaseolina* and *Meloidogyne javanica* on green bean were examined in two different greenhouse pot experiments. The results showed that disease severity decreased with increasing seedling age at inoculation from 4 to 6 to 8 weeks, and nematode reproduction was suppressed. However, mechanical wounding of the roots during inoculation with both pathogens increased the root-rot index, root galling severity, fungal recovery from roots, and the number of eggs per gram roots produced by the nematodes, consequently decreasing plant growth. [A.S Al-Hazmi, A.A.M. Dawabah, S.N. Al-Nadhari, F.A. Al-Yahya, and H.A. Lafi (Egypt/Saudi Arabia), *Nematropica*, 46:229-234, 2016]

Fumigant Toxicity and Anti-acetylcholinesterase Activity of Essential Oils against the Land Snail, *Theba pisana* (Müller). Toxic baits of conventional pesticides are the main method to control land snails. This work was conducted to evaluate the fumigant toxicity of four natural materials, Fenchone, *Lavandula dentate* essential oil, limonene, and Carvone, against the harmful land snail, *Theba pisana* (Müller). The LC₅₀ values of the above mentioned materials were 3.3, 16.3, 19.8, and 33.2 µl/L air, respectively. The antiacetylcholinesterase activity of the tested individual compounds was studied; the I₅₀ values were 2.61 µl/ml (0.0.016 M, fenchone) and >5µl/ml (> 0.03 M) for carvone and limonene. The results showed that fenchone is more toxic than methyl bromide by two fold, against *T. pisana*. The results are promising, comparable to conventional pesticides and indicate the possible use of these materials, in controlled release formulations, to control land snails in small closed areas, like greenhouses, as alternatives to the environmentally hazardous pesticides. [El-Sayed H. Eshra, Yasser Abobakr, Gaber M. Abddelgalil, Esmail Ebrahim, Hamdy I. Hussein and Ali S. Al-Sarar.(Egypt/Saudi Arabia), *Egyptian Scientific Journal of Pesticides*, 2:91-95, 2016].

SUDAN

Seasonal Incidence and Biology of Soybean Stem Borer, *Melanagromyza sojae* (Diptera: Agromyzidae) on Alfalfa (*Medicago sativa*) in Sudan. A roving survey was carried out in the eastern outskirts of Sudan capital Khartoum in pivot-irrigated alfalfa (*Medicago sativa*) farm. Samples of yellow stunted plants suspected of an insect infestation were selected and brought to the laboratory for collection of emerging insects. Larvae and pupae collected from infested alfalfa stems were reared up to the adult stage under laboratory conditions. The Natural History Museum (UK) identified the species responsible for the damage as soybean stem borer or stem fly, *Melanagromyza sojae* (Zehntner). This pest could cause more than 50% field damage in commercial alfalfa plantations. The majority of larvae and pupae were located in the part of the stem adjacent to the soil surface. Significant high level of infestation ($p < 0.01$) was recorded during June, July and August. The level of infestation was found to be positively

and highly correlated with rainfall ($r=0.63$) and temperature ($r=0.57$). Three hymenopterous parasitoids associated with *M. sojae* namely; *Gronotoma* sp., *Sphigigaster* sp., and *Platynocheilus cuprifrons* were identified. To our knowledge, this is the first record of this pest on alfalfa in Sudan. [Babiker Mohamed Ahmed Abdel-Banat, Reham Yousif Osman Hassan, Magzoub Omer Bashir, and Hamadttu Abdel Farag El-Shafie.(Sudan), Agriculture and Biology Journal of North America, 8(2): 45-50, 2017].

TUNISIA

Development of TaqMan Real-Time PCR Markers Targeting *Erwinia amylovora* Chromosomal DNA. From the earliest, *Erwinia amylovora*, the causal agent of the fire blight disease was considered an invasive pest that threatened several pome fruit varieties elsewhere and disrupted their commercialization. In this work, highly specific sets of real-time PCR fluorogenic primers and probes flanking the 16S-23S rRNA intergenic transcribed spacer regions have been designed based on TaqMan chemistry. Throughout a serial of validation trials, crucial reaction parameters have been optimized. Therefore, the primer set ITSEA2 highlighted the most reliable signals in terms of gene expression. With respect to conventional PCR tools, the newly developed molecular markers provided more accurate specificity, a higher sensitivity up to 105 cfu/ml and a quantitative amplification of the targets. [Yahiaoui, D., Chérif, M., and Ham, J.H. (Tunisia), Tunisian Journal of Plant Protection 11: 25-35, 2016]

Effect of Crop Management on Soil Bacterial Communities in Organic and Conventional Farming Systems. The aim of the present study was to assess the population of bacteria isolated from organic and conventional soils and to identify antagonistic ones with a potential antifungal activity against some pathogenic fungi (*Rhizoctonia solani* and *Fusarium oxysporum*). All cultivable bacterial isolates were evaluated for their antifungal activity and the most effective ones were identified based on 16S rDNA sequence analysis. The results showed that among a total number of 100 bacteria isolated from soil, eight isolates displayed antifungal activity against *F. oxysporum* and twenty-four isolates had suppressed *R. solani* growth. The results indicated that tested bacterial species exhibited varying degree of antagonistic potential against pathogenic fungi that ranged from 22.7% using AB95 isolate to 77.2% with AB40 and AB8 tested against *F. oxysporum* and from 22.7% using AB51 and AB5 to 68.1% with AB75 and AB64 tested against *R. solani*. DNA sequencing reaction of purified PCR amplicon was carried out using 16sF and 16sR primers. Sequence alignment with the reference sequences of the databases using BLAST was performed. The most dominant genus was *Bacillus*. Phylogenetic tree was built.[Elabed, N., Bourri, M., Rhouma, A., Ben Kheder, M., and M'Hamdi, M. (Tunisia), Tunisian Journal of Plant Protection 11: 37-49, 2016].

Effect of Olive Leaf Extracts on the Feeding, Growth and Metabolism of *Spodoptera littoralis*. In the present study, methanol and acetone crude extracts of olive leaf were investigated for their antifeedant activity, growth and metabolism inhibitory against the cotton leaf worm, *Spodoptera littoralis* under laboratory conditions. Two feeding tests: leaf discs and artificial diet at three concentrations (0.1, 1 and 10%) of each extract, were implemented in the experiment. Results revealed that the leaf discs bioassay was more effective than the artificial diet bioassay for the antifeedant activity and the weight loss of *S. littoralis* larvae. Acetone and methanol extracts caused strong antifeedant activity at 10% with 68.33 and 61.44%, respectively. Tests performed on growth generated a very pronounced inhibition of growth gain using leaf disc test for the two extracts and at all tested concentrations. Data indicated that the lowest relative consumption rate (RCR) and the relative growth rate (RGR) were recorded using acetone extract at 10% for leaf discs bioassay (5.88 ± 0.75 and 0.07 ± 0.05 mg/mg/day, respectively). The efficiency of the conversion of ingested food (ECI) and the efficiency of conversion of digested food (ECD) were significantly lowered using methanol extract at 10% in artificial diet bioassay (2.5 ± 0.58 and $2.55 \pm 0.6\%$, respectively). The highest approximate digestibility (AD) of *S. littoralis* larvae was found in both extracts for the artificial diet bioassay. Moreover, larvae exposed to 10% methanol extract in artificial diet test exhibited a delayed growth rate by 17.7 days, relative to control at the same concentration, compared to 5.7 days noted using acetone extract in leaf disc test. The antifeedant activity, growth and metabolism parameters are appropriate tools in feeding tests and extracts' activity evaluation. They could provide profound understanding of the choice of the best plant extracts that could be proposed as bioinsecticides in a more environment friendly approach.[Ben Hamouda, A., Boussadia, O., Bedis, K., Chaieb, I., Laarif, A., and Braham, M.(Tunisia),Tunisian Journal of Plant Protection 11: 63-72, 2016].

Effectiveness of Kaolin Treatment for the Control of the Olive Fruit Fly *Bactrocera oleae* in Tunisian Olive Groves. The impact of kaolin treatments (Doses D1 = 3 kg/hl and D2 = 5 kg/hl) on the olive fruit fly *Bactrocera oleae* populations was investigated during a three-year study (from 2012 to 2014) in olive grove located in Nabeul:

North-Eastern of Tunisia. The results showed that kaolin based-treatment compared to dimethoate, led to a very low level of olive infestation. Kaolin had successfully suppressed *B. oleae* populations and provided season-long pest control. However, D1 and D2 doses had almost similar effects against *B. oleae* populations. Furthermore, kaolin based-treatment seemed to have no adverse effect against parasitic activity and especially that of *Psytalia concolor*. Eventually, based on the obtained results, it can be concluded that kaolin may be a promising alternative for the control of *B. oleae* in organic olive groves. [Gharbi, N. and Ben Abdallah, S.(Tunisia), Tunisian Journal of Plant Protection 11: 73-81, 2016].

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

Antifeedant and Antigonadotropic Effects of *Ruta chalepensis* Methanolic Extract Against *Locusta migratoria*. The migratory locust *Locusta migratoria* is one of the most important pests due to its extensive and serious damage to crops in large parts of Africa and Asia. To identify novel new environment friendly products for the management of the migratory locust, experiments were conducted to assess the effect of a methanolic extract of *Ruta chalepensis* (*ME-Rc*) on feeding activity and different reproductive phases of *L. migratoria*. The results showed that *ME-Rc* caused a significant decline in food intake and insect digestibility. The treatment applied to adult females caused a significant lengthening of the preoviposition period and a significant reduction in both fecundity and fertility. *ME-Rc* also affected growth and development of oocytes as evidenced by measurements of ovarian weight, length and volume of terminal oocytes and ovarian index. In addition, *ME-Rc* based-treatments led to disturbances in the incorporation of haemolymph metabolites (proteins and carbohydrates) in oocytes resulting in a significant decrease in their concentrations in ovaries. [Abdellaoui, K., Miladi, M., Ben Marzouk, I., Bahloul, N., Acheuk, F., Chaira, N., and Ben Halima-Kamel, M.(Tunisia), Tunisian Journal of Plant Protection 11: 91-104, 2016].

The Use of IRPeQModel as Indicator to Estimate the Risk of Some Pesticides on Human Health and Environment. Different pesticides can be used by farmers to control bioaggressors. To assess environmental and human health risks due to pesticide use, pesticide risk indicators are elaborated. The objective of this study was to characterize the potential risks of pesticides used and their side effects on health and environment. A census of the use of pesticides in citrus orchards was conducted among farmers in Tunisia during crop season 2013/14. Two risk indexes were calculated for each pesticide: a Health Risk Index (HRI) and an Environmental Risk Index (ERI) according to the Quebec Pesticides Risk Indicator (IRPeQ). The parameters used to follow each calculation were obtained from the registration dossier of each formulation and the international databases like Agritox, Extoxnet and PAN Pesticides. The highest HRI were obtained for the formulations based on the active ingredient methidathion (HRI=1227), while, Success Appât® a formulation, based on spinosad as active ingredient, is the product with the lowest health risk (HRI= 12). On the other hand, its ERI was evaluated with an index of 175, according to its toxicity towards honeybees. The fungicide formulation Aliette Express® presented slightly low health and environmental risk indexes. The determination of the risk indexes HRI and ERI allowed us to compare pesticides (active ingredient and formulation) according to their potential risk and facilitate the choice of the pesticide with least risk for human health and environment.[Bouagga, A., Chaabane, H., Bahrouni, H., and Hassine K.(Tunisia), Tunisian Journal of Plant Protection 11: 133-141, 2016].

The European Wood Wasp *Sirex noctilio*: Distribution, Hosts and Parasitoids Recovered in Tunisia. *Sirex noctilio* is an invasive wood wasp pest in North America and in the southern hemisphere. Despite some reports on its presence in Tunisia, no further studies were undertaken on its distribution hosts or potential associated parasitoids. In this paper, we confirmed the presence of *S. noctilio* in Tunisia, its widespread in several newly defined locations and its associated pine hosts. This species was widely distributed in the northern forests of Aleppo, maritime and stone pine and seemed to be absent in monospecific forests of Aleppo pine in semi-arid locations. The life cycle was completed within one year. Two parasitoid species emerged from *S. noctilio*-attacked logs, which were identified as

belonging to *Ibalia* and *Rhyssa* genera. Due to the apparent low abundance of *S. noctilio* and its absence in the semi-arid locations, risks of phytosanitary problems attributed to this species are of limited importance in Tunisian forests. [Mejri, M., Naves, P., De Sousa, E., and Ben Jamâa, M.L.(Tunisia), Tunisian Journal of Plant Protection 11: 157-163, 2016].

Confirmation of *Deudorix livia* Identification on *Acacia farnesiana* and its First Report in Southern Tunisia.

In 2012, *Deudorix livia* was responsible for severe losses in production of pomegranate trees in the regions of Gafsa and Gabes situated in Southern of Tunisia. *D. livia* was observed on some pods of *Acacia farnesiana* planted as windbreak around these orchards. Larvae of *D. livia* were observed drilling fruits to eat seeds. At present, the life cycle of *D. livia* is poorly studied. We confirmed its identification using molecular tools and reported for the first time its occurrence in Southern of Tunisia. [Mkaouar, R., Hausmann, A., and Ben Jamâa M.L.(Tunisia), Tunisian Journal of Plant Protection 11: 165-169, 2016].

UNITED ARAB EMIRATES

Effect of Trap Colour and Trap Height above the Ground on Pheromone Mass-trapping of the Red Palm Weevil *Rhynchophorus ferrugineus* (Coleoptera: Dryophthoridae) in Date Palm Groves in Abu Dhabi, U.A.E.

The Red Palm Weevil (RPW) *Rhynchophorus ferrugineus* (Olivier) is one of the most destructive insect pests of palm trees in the Old World. In the United Arab Emirates, it appeared in 1985, attacking date palms. Mass trapping with male aggregation pheromone traps was used in date palm plantations in Abu Dhabi, U.A.E., from November 2008 through to July 2009. The goal was to see what combination of trap colour/height was best at collecting the weevils. Five palm plots and 40 traps (8 per plot) were used in the trials. Traps were either red or white, placed at ground level, 0.5 m, 1.0 m and 1.5 m. 5,478 weevils were collected. Red traps attracted more weevils (61.34%, 3,360 captures) than white ones (38.66%, 2,118 captures). The Wilcoxon statistical test showed significant differences in the number of captures grouped by trap colour in all cases. Male/female ratio for captures was reported to be 1/ 2.12. Trap height showed no statistical significance (except for red traps placed at heights of 0.5 m and 1.5 m), therefore no specific height could be determined as the best option for either red or white traps. [Ahmad Hussien Al-Saoud, Raúl Yusta & Victor Sarto Monteys, (United Arab Emirate), Boletín de la Sociedad Entomológica Aragonesa (S.E.A.), 59: 247–253, 2016

PLANT PROTECTION NEWS IN THE ARAB COUNTRIES AND NEAR EAST

Postgraduate Arab Students Activities (Master and Doctorate Thesis)

Influence of Rootstock and Soil Type on Infestation of Grape *Phylloxera*, *Phylloxera vitifoliae*. This study has been conducted in two locations of Alsuwayda (Msad and Rsas) in 2014-2016, to study the dynamics of Grape *phylloxera* on commercial grape varieties grafted on B41 and Rug 140 rootstocks, samples were collected from two fields of each location and all studies have been carried out in parasitoids section (Biological control studies and researcher center). Insect mortality percentage at different insect life stages has been calculated, the effect of soil on gripe *P. vitifoliae* were evaluated and accompanying fungi were identified, finally laboratory studies of effect of some plant extracts against gripe *P. vitifoliae* insect were carried out. The insect mortality percentage varied with respect to locations and rootstocks. Soil analysis showed that soil texture was clay in different studied sites and the clay percentage was increased with soil depth. Fungal species have been identified and isolated from *phylloxera* feeding sites in study locations; *Fusarium oxysporum* was the most prevalent and associated with infested roots of both rootstocks in both locations, but *Pythium* spp and *Trichoderma* sp. were presented in Msad region and only associated with B41 samples. Results from this study suggested that the infestation degree by *phylloxera* is due to a combination of both insect damage and root rots caused by soil-borne fungal pathogens. Effects of some plant root extracts (Tobacco, Mint and Basil) on grape *phylloxera* were evaluated using a laboratory bioassay. Observations indicated that the aqueous root extracts exhibited biological activity against nymph a significant decrease in the female fecundity due to tobacco aqueous root extract. [Basel Alshadidi, Plant Protection Department, College of Agriculture, University of Damascus, Damascus, Syria. (M. Sc. 2016)].

Taxonomical and Morphological Study of Book and Bark lice (Order: Psocoptera) in Baghdad and Babylon Provinces. The order Psocoptera fauna of Iraq has been very poorly studied and they are known only by one species; the present was selected to study deals with the morphology and taxonomy of book and bark lice species in different localities of Baghdad and Babylon provinces. Thirteen species belong to eight genera and five families have been studied and described in details, these species were recorded for the first time in Iraq, with the exception the species *Lachesilla quercus* kolb 1880 was recorded previously in Iraq. These species are: *Liposcelies decolor* -Peramane1925,*Liposcelies paete*-Pearman1942, *Liposclies bostrychphila* –Badonnel 1931,*Liposclies entoophila*- Enderlein 1907,*Liposclies brunnea* –Mostchulsky 1852 *Embodopsis newi* -Badonnel 1973,*Belaphotroctes oculeris*-Bodonnel 1973,*Belaphopsocus badonneli* -New 1971,*Nonapsocus oceanicus* -Pearman 1928,*Lepinotus huoni* -Schmidt and New 2008,*Neopsocopsis-minuscule* Li 2002,*Epipsocus stigamicus*-Mockeord 1991. Identification key to suborders, families, genera and species were designed according to differences of morphological characters. Adults are described in details and all body parts were pictured and some of them drawn by Camera Lucida. Locality and date of collection the name of plants were provided. [Aseel Adnan Kasim Al-Sharraa, Plant Protection Department, College of Agriculture, University of Baghdad-Iraq. (M. Sc. 2016)].

Identification and Some Biological Studies of Cotton Leaf – Worm and Development Threshold and Thermal Constant Temperature *Spodoptera littoralis* (Boisd.) {Lepidoptera: Noctuidae}. Cotton leaf worm *Spodoptera littoralis* (Boisd.) was considered an important economic insect on Solanaceae plants, the insect cause damage to the seeding, leaves, flowers and fruits. studied the insect's life cycle under four different temperatures are (15, 20, 25, 30)C°, Laboratory results revealed great influence of the temperature on the development periods of the insect stages being (10.67 ,34.16 ,4 ,22.3,), Days for eggs ,larvae ,pre-pupae respectively and eggs to adults was 71.13 days at 20 c , while it was (3.2 ,15.5 ,1.1 ,8.6) and 28.22 days for eggs , larvae , pre-pupa , pupae and to adults respectively at 30 c° . It was apparent from this study that the development threshold for eggs , larvae , pre-pupa , pupa and eggs – adults were (12.6 ,10.7,16.3, 13.5) and 15 c° respectively and the thermal requirements were (58.82, 294. 16.6,142.8) and 500 day – degree respectively .The results of morphological classification were confirmed by using molecular diagnosis (PCR) for adults. [Hussam Allawi Alhelfi, Plant Protection, College of Agriculture - University of Baghdad-Iraq, (Diploma, 2017)].

Wheat Genotypes with Combined Resistance to Wheat Curl Mite, Wheat Streak Mosaic Virus, Wheat Mosaic Virus, and Triticum Mosaic Virus. The wheat curl mite, *Aceria tosichella* Keifer, (WCM) is a global pest of bread wheat that reduces yields significantly. In addition, WCM carries *Wheat streak mosaic virus* (WSMV, family *Potyviridae*, genus *Tritimovirus*), the most significant wheat virus in North America; *High Plains wheat mosaic virus* (HPWMoV, genus *Emaravirus*, formerly *High plains virus*); and *Triticum mosaic virus* (TriMV, family *Potyviridae*, genus *Poacevirus*). Viruses carried by WCM have reduced wheat yields throughout the U.S. Great Plains for >50 yr, with average yield losses of 2-3% and occasional yield losses of 7-10%. Acaricides are ineffective against WCM, and delayed planting of winter wheat is not feasible. Five wheat breeding lines containing *Cmc4*, a WCM resistance gene from *Aegilops tauschii*, and *Wsm2*, a WSMV resistance gene from wheat germplasm CO960293-2 were selected from the breeding process and assessed for phenotypic reaction to WCM feeding, population increase, and the degree of WSMV, HPWMoV, and TriMV infection. Experiments determined that all five lines are resistant to WCM biotype 1 feeding and population increase, and that two breeding lines contain resistance to WSMV, HPWMoV, and TriMV infection as well. These WCM-, WSMV-, HPWMoV-, and TriMV-resistant genotypes can be used improve management of wheat yield losses from WCM–virus complexes. [Wen-Po Chuang, Lina Maria Aguirre Rojas, Luay Kahtan Khalaf (Iraq), Guorong Zhang, Allan K. Fritz, Anna E. Whitfield, C. Michael Smith, J. Econ. Entomol. (Graduate Student 2017), <https://doi.org/10.1093/jee/tow255>

Herbicide Resistance of Ryegrass (*Lolium rigidum* Gaud.) and Integrated Resistance Management Strategies in the Production Systems Dominated with Cereal. Rigid ryegrass (*Lolium rigidum* Gaud.) is one of the world's worst weeds, with a major economic and agronomic negative impact. It has developed cross and multiple resistances to several herbicide families worldwide. In Tunisia, rigid ryegrass is infesting several crops including cereal crops. Over the last years and since the first reports of herbicide resistant populations of ryegrass, there have been few studies of the prevalence of the weed, crop yield damages as well as of the factors contributing to its development. Therefore, the study was undertaken to design effective ryegrass management strategies in cereal crops given weed distribution, its susceptibility to commercial herbicides and the extent of herbicide resistance in ryegrass

populations. Field surveys, farmers interviewers as well as laboratory and field essais were conducted in order to meet the objective of this study. Surveys conducted in 312 fields showed that the frequency of infested fields by ryegrass represents 32%. Weed infestation is highly correlated with annual ($R^2=0.99$) and seasonal rainfall [autumn ($R^2=0.81$), winter ($R^2=0.97$) and spring ($R^2=0.99$)]. The highest ryegrass densities (> 300 plants / m^2) occurred in the sub humid (Bizerte and North of Beja) while medium to low densities were found in the semi-arid (Jendouba, Kef, Siliana and Zaghouan). The yield losses were highly correlated ($R^2=0.93$ and $p=0.0001$) with ryegrass infestations. Crops yields decrease as weed densities increase ($Y=109.6 e-0.001 * X$). Bioassays using the RISQ Test (Resistance In Season Quik Test) were conducted to detect herbicide resistance of 171 ryegrass populations randomly collected in cereal areas, to the two commonly used herbicides: Topik® (clodinafop-propargil, ACCase inhibitor) and Amilcar WG® (iodosulfuron+mesosulfuron inhibitor ALS). A third herbicide, Axial® (pinoxaden, inhibitor ACCase), was tested on 39 populations collected from Bizerte for cross- and multiple- resistance studies. A random selection of 53 ryegrass populations was tested for herbicide resistance to Topik® and Amilcar WG® at the recommended rates in pots experiments in natural conditions. The results showed that resistance to the ACCase inhibitors and to the ALS inhibitors was detected in 58% and 52% of the tested populations, respectively. The governorates of Bizerte (68% vs 60%), Beja (62% vs 44%) and Jendouba (32% vs 57%) are the most affected by resistance to the ACCase and ALS inhibitors. Furthermore, ryegrass collected from Bizerte exhibited multiple (23%) and cross (28%) resistance. Results of the RISQ Test are highly correlated ($R^2=0.99$ for ACCase and $R^2=0.89$ for ALS) with those of pots experiments. Factors that may contribute to the evolution of herbicide resistance in ryegrass populations were also investigated. The results revealed that most of the interviewed farmers are adopting cultural practices that may favor weed growth and development. These include the lack of stubble (67%), early sowing (70%), self-produced seeds (46%), no-till (26.4%), mono-cropping (59%) and lack of rotating herbicide groups (56%). Results have also shown that the evolution of resistance in ryegrass is highly correlated with the frequency of use of the ACCase ($R^2=0.98$ and $p=0.009$) and ALS ($R^2=0.99$ and $p=0.0004$) inhibiting herbicides. Field trials conducted in an integrated weed management (IWM) approach revealed that ryegrass infestation may be increased by early sowing and mono-cropping of wheat as well as by minimum tillage. In contrast, the false seeding (45%), soil tillage (44%), late sowing (71%), crop rotation and alternating herbicide groups have significantly reduced ryegrass infestations. Results showed that the use of herbicides of the group (N), recently introduced in Tunisia, combined with late sowing of wheat may reduce ryegrass populations by an average of 80%. Rotating herbicide groups (A/no herbicide/ K1+C2+B) in combination with the practice of a triennial rotation (wheat/oat for silage/small faba bean) and soil tillage resulted in 99.7% reduction in ryegrass densities, a significant decrease in weed seedbank and an increase in the gross margin, up to 7844 TND. Our study has shown that rigid ryegrass has developed resistance to herbicides commonly used by cereal growers for its control in wheat in north of the country. control options to reduce dependency on herbicides that integrate alternative methods are needed to manage resistant rye-grass populations and prevent the evolution of herbicide resistance in cereal crops in Tunisia. [Messaad Ben Mohamed Khammassi, University of Carthage, National Institute of Agronomy, (INAT), Tunis, (Ph. D. 2017)].

The Mediterranean Fruit Fly (*Ceratitis capitata*) on Citrus: A Dangerous Pest Threatening Citrus in Morocco.

The Mediterranean fruit fly (Medfly) *Ceratitis capitata* is a key pest in citrus orchards in Morocco and is a very dynamic organism due to its enormous potential for adaptability to a wide range of potential hosts, which makes it a real and serious threat to all commercial fruits (Mazih, 1992). In Morocco, the ceratitis causes considerable damages on citrus fruits and many other cultivated species (plum, peach ...) and non-cultivated (Argan). The genetic structure of this species remains unexplored at micro-geographical level, specifically in Morocco. Therefore, this pest is subject for several surveys, always searching for better knowledge and understanding of its population dynamics and at the same time for finding alternative methods for control. However, the implementation of Integrated Pest Management is slowly taking place. Some alternative methods have been developed already by means of research, in order to meet the new requirements of the market regarding fruit quality, environment and health. In this sense, biological control (*Opius concolor Szpeligeti*) is in progress and alternative methods to chemical control such as Sterile Insect Technique (SIT), mass-trapping

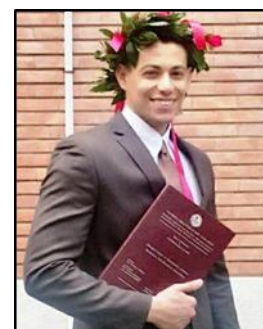


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technique to catch the maximum of the females of Medfly in the orchard by using large numbers of traps baited with food attractants (female food-attractant lure Tri-pack® and the insect growth regulators lufenuron), traps and baits based on Trimedlure and DDVP insecticide for monitoring the adults. Moreover, the chemical control could be used by applying baits spray (proteins and Malathion or spinosad) to protect natural enemies and to avoid the risk of contamination by insecticides. The efficacy of CeraTrap (CT), a specifically developed enzymatic hydrolyzed protein, was evaluated against standard mass trapping (STD mass trapping) and standard chemical treatments (Chemical STD). Field trials were conducted on susceptible mandarin trees (*Citrus reticulata* cv. Esbal), orange trees (*Citrus sinensis* cv. Washington Navel) and Clementine trees (*Citrus clementina* cv. Oronules) in Morocco to study the efficiency of these techniques in citrus orchards; the results showed that CT is at least as good as those obtained with the Chemical Standards (STD). [Imane Bibi, National Institute for Agricultural Research (INRA) in Morocco (Graduate student 2017)]

Morphological and Molecular Characterizations of *Fusarium solani* f.sp *cucurbitae* Isolates on Melon and its Possible Control. *Fusarium solani* f.sp *cucurbitae* causal agent of the root and crown rot cucurbit is one of the worldwide disease causes economic losses to the melon crop. This work aimed to study the morphological, molecular, genetic diversity and possible control of *Fusarium solani* f.sp *cucurbitae* on melon crop under laboratory and greenhouse conditions. The results showed that all isolates were pathogenic to melon plants under greenhouse conditions, (D6Fs18 and M13Fs39 isolates the percentage of the disease severity of shoot and root system in reached 98.12 %, 98.67 % and by 98.6 %, 98, 88 % respectively compared to of control treatment (0%) for shoot and root system. Molecular identification of these isolates using PCR technique indicated the presence of the thirty-two isolate (amplified product 580 bp) race 1 and two isolate (amplified product 580 bp) race 2, while six isolates were not amplified with primer of both races. Production of Trichothecenes (T2-toxin, DON) by *Fusarium solani* was demonstrated. The results revealed the presence of Tri5, Tri13 genes that coding the ability of synthesis of mycotoxin. In vitro, the results showed that the NPs (AgNPs, MgNPs) and chemical (Phylex) revealed antifungal properties against *F. solani* f.sp *cucurbitae*. Treatment with (AgNPs 150 ppm, MgNPs 2%, 3%) and 0.3% Phylex were greatly inhibited the growth of *F. solani* compared with that in control treatment. In vivo growth parameter of melon plants were affected significantly with nanoparticle and chemical treatments in greenhouse. The results showed that the T13 treatment AgNPs, MgNPs and Phylex were increased the Plant height (78 cm), fresh and dry weight shoot T13 treatment AgNPs, MgNPs and Phylex (5.443g), (1.9 g). fresh and dry weight root (2.65 g) (0.19 g), had lowest weight than positive control. [Falah Abdul-Hassan Hussein, Plant Protection Department, College of Agriculture, University of Baghdad-Iraq (Ph. D. 2017)].

Biological Control of *Aleurocanthus spiniferus* (Quaintance, 1903) (Rhynchota- Aleyrodidae). The recent accidental introduction in Italy, Croatia and Montenegro of the invasive Orange Spiny Whitefly (OSW), *Aleurocanthus spiniferus* (Quaintance), is a new challenge for plant protection all over the Mediterranean and represents a menace to citrus and many other host plants trade in this region. Today OSW is reported in the EPPO A2 list, as introduced, acclimatized and spreading in the EPPO region. Dense colonies of immature stages develop on leaf undersides. Leaves and fruit have spots of sticky, transparent honeydew, which become covered in black sooty mould fungus that reducing respiration and photosynthesis and rendering plants and fruit unsightly and unsaleable. A heavy infestation gives trees an almost completely black appearance. It causes a general weakening of seriously infested plants due to sap loss and the growth of sooty mould. Nitrogen levels in infested leaves are reduced and young leaf growth is damaged by heavy infestations. In fact, starting from its primary detection sites in Italy (near Gallipoli, the province of Lecce, in Apulia), where it has been recorded in 2008, and the whitefly is still progressively invading new territories and widening its diffusion. The pest infests citrus plants in fruit orchards, private and urban gardens, avenues, natural reserves and protected areas. Recent findings in Apulia reveal the establishment of OSW up to the provinces of Taranto and Bari, considerably north-western than previously reported. Pest foci in or near main cities and towns are probably due to trade-dependent, passive dispersion of leaves-marketed fruits and plants for plantings. *A. spiniferus* is essentially a pest, which infests evergreen plants; in Italy, it overwinters as juvenile fixed under host plant leaves. In warm season, OSW infests also many deciduous host plants, generating abundant populations that increase the dispersal ability of the species, consistently. We discuss the pest invading ability basing on the new territories gained by the insect and the possible advantages deriving to *A. spiniferus* by the above mentioned alternate use of



evergreen/deciduous host plants.[Ahmed Elkenawy (Egypt), Plant Science and Environmental Technology, Department of Soil, Plant and Food Science, Bari ,(Ph. D. 2017)].

Use of Standard and Setup of Non-Conventional Techniques for the Elimination of Viruses Associated with Fig Mosaic Disease (FMD) in Fig Germplasm (*Ficus carica* L.). [Emna Yahyaoui, Tunisia has defended an international cooperation PhD diploma between the Universitat Politècnica de València (UPV-Spain) and the Università degli Studi di Palermo (UNIPA-Italy) (Ph. D. 2017)].



Development of Isothermal Detection Methodology for *Plasmopara viticola* and *Phytophthora Infestans*. [MéliSSa Si-Ammour ,University of Tuscia-Viterbo,Italy,Algeria, (Ph. D. 2017)].



Investigations on the Transmission of the Bacterium *Xylella fastidiosa* by Insect Vectors. [Issam Ben Moussa, University of Tuscia-Viterbo, Italy, Tunisia, (Ph. D. 2017)].



❖ Some Plant Protection Activities of FAO and Other Organizations

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

New action plan to protect palm trees and stop the spread of Red Palm Weevil

A new action plan to stop the spread of the Red Palm Weevil has been endorsed in 31 March 2017 at a high-level meeting at the United Nations Food and Agriculture Organization (FAO) in Rome.

Agriculture ministers and other government representatives agreed on a new strategy to fight the pest. It includes national interventions such as improved pest monitoring and greater involvement of farmers, as well as international efforts such as rigorous phytosanitary measures against the import of the palms from infested countries. The endorsement came after scientists, pest control experts, farmer representatives and others took part in the Scientific Consultation and High-Level Meeting on Red Palm



Weevil, hosted by FAO with the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM), to share the latest research and agree the best way forward. The red weevil destroys palm trees by eating them from the inside, and has rapidly expanded its global spread to more than 60 countries. The pest attacks 40 palm species worldwide. The three most-affected species are coconut palm, date palm in addition to ornamental palm trees, particularly, Canary Island palms. Factors contributing to the spread have been late detection of infested palms because of insufficient inspections, a lack of engagement with date and coconut farmers, improper assessment of the risks, few natural enemies of the pest, difficulties managing mass trappings across large oases networks, lax quarantine, improper disposal of infested trees, and difficulty controlling the pest in private homes or small family gardens. "The Red Palm Weevil has become a global threat and demands a global strategy to eradicate it," said FAO

Director-General José Graziano da Silva. "The message coming from the scientific consultative meeting is a positive one: The Red Palm Weevil can be controlled and defeated." Proof is in the Canary Islands. It was declared free of the pest in May last year, after implementing a coordinated strategy that included tight monitoring controls and the removal of all infested trees. In Mauritania, detection of the pest in an oasis triggered quick action by the Government with the support of FAO to implement an integrated pest management strategy that had farmers and farmer cooperatives at the core. The pest has been successfully contained to the original infestation area, without any outbreaks in the past six months, and with continued control efforts, it is likely the area will be declared pest-free. Integrated pest management involves farmer training, regular inspections, trapping using pest-attracting pheromones, tracking infestations, removing heavily infested trees, tight quarantine controls, and monitoring progress of the integrated approach. Farmers can be a very efficient, and cost-effective, frontline defence, if they are well trained and actively involved in the detection of the pest in the early stage of attack when a tree can still be saved, and in carrying out control measures and pest trapping. The new framework aims to provide technical assistance and guidance for improving national control programs as well as a platform for inter-regional cooperation and coordination. It was produced by an international team of Red Palm Weevil experts from various countries and organizations with the support of FAO, CIHEAM and the Near East Plant Protection Organization (NEPPO). Link for the website and resources the event: <http://www.fao.org/food-chain-crisis/high-level-meeting/en>

DESERT LOCUST SITUATION

Situation level: Caution

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

The Desert Locust situation improved during February. Intensive control operations reduced infestations along the Red Sea coast in Saudi Arabia and locusts declined on the coast of Sudan as vegetation dried out. In Northwest Africa, limited control was undertaken against a few residual adult groups in northwest Mauritania. During the forecast period, adults will shift from winter to spring breeding areas. This may be most noticeable in Saudi Arabia where adult groups and perhaps a few small swarms could form on the coast and move inland. Small-scale breeding is likely to occur in northern Mauritania, along the southern side of the Atlas Mountains in Morocco and Algeria, in the Nile Valley of northern Sudan and in southeast Iran but locust numbers are expected to remain below threatening levels in all areas.

Western Region. The situation remained generally calm in the region during February. Limited control operations (227 ha) were carried out against a few remaining adult groups in northwest Mauritania while scattered adults persisted in the north. Small-scale breeding took place in parts of the Western Sahara in southern Morocco but locust numbers remained low. During the forecast period, small-scale breeding is likely to occur in northern Mauritania and along the southern side of the Atlas Mountains in Morocco and Algeria, causing locust numbers to increase slightly. In the northern Sahel, isolated solitarious adults were seen in southeast Niger.

Central Region. Ground and aerial control operations (4,243 ha) continued in Saudi Arabia against hopper groups, bands and a few adult groups on the central and southern Red Sea coast. By the end of the month, locust infestations had declined. As vegetation dried out, locust numbers declined on the Red Sea coast in Sudan where limited control (85 ha) was undertaken against groups of adults. The situation remained unclear in Yemen where surveys were not possible in winter breeding areas. During the forecast period, any remaining adults that escaped detection and control on the Red Sea coast in Saudi Arabia may form a few adult groups or perhaps a small swarm or two that are likely to move inland and breed during the spring in areas of recent rainfall. Limited breeding may occur near crops in the Nile Valley of northern Sudan. In the Horn of Africa, a few adult groups from January breeding may form on the northwest coast of Somalia and move into adjacent areas of eastern Ethiopia. Elsewhere, no locusts were reported in the region.

Eastern Region. No locusts were reported and the situation remained calm in the region during February. Small-scale breeding is likely to occur in southeast Iran and perhaps southwest Pakistan in areas where good rains fell during January and February. Consequently, locust numbers will increase slightly but remain below threatening levels.

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

Locust in the Central Region <http://desertlocust-crc.org>.

Source: The FAO Desert Locust Bulletin issued monthly in English and French by the Desert Locust Information Service, AGP Division (Rome, Italy; and Arabic version by the Commission for Controlling the Desert Locust in the Central Region (FAO Regional Office for Near East, Cairo, Egypt <http://desertlocust-crc.org>).

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

Commission for Controlling the Desert Locust in the Central Region

The celebration of the 50th Anniversary of the Establishment, Oman, Muscat, 19-24 February 2017

The Commission for Controlling the Desert Locust in the Central Region (CRC) concluded in Oman a series of meetings that started on February 19 with a ceremony marking the 50th Anniversary of the organization's establishment, Under the auspices of H.E. Dr. Fuad bin Jaafar Al-Sajwani, Minister of Agriculture and Fisheries, Sultanate of Oman, in the presence of Mr. Abdessalam Ould Ahmed, FAO Assistant Director-General and Regional Representative for the Near East and North Africa of the Food and Agriculture Organization of the United Nations, where member state renewed their commitment to act to control Desert Locust.

Between February 20 and 24, Oman hosted the 30th Session of the CRC and the 34th Meeting of its Executive Committee. Taking part were 15 out of the CRC 16 member states, representatives of Desert Locust Control Commissions, Organization and Food and Agriculture Organization of the United Nations (FAO). Oman was elected to chair this session for 2017 and 2018. Saudi Arabia was elected as vice-chair. The participants examined a detailed report on the activities of the Executive Secretary of the CRC, Mamoon AlAlawi in the past two years, as well as recommendations issued at the 29th session.

The meetings discussed desert locust control efforts in the past two years and treatment of 244,000 hectares of infested areas in Saudi Arabia, Sudan, and Eretria. Control action was limited in Yemen due to security challenges. The participants reviewed technical activities, training programs, publications, and emergency/contingency plans in locust breeding regions. They emphasized the need for taking health and environmental safety precautions, as well as classification of pesticides and registration of safe and environmentally friendly pesticides in regional countries. Discussions covered a project for the use of drones for locust early warning, preventive control, and survey. The participants underlined the importance of the project, which is linked to electronic platforms, agreeing that it ensures precision and provides accurate information to enhance data analysis and the decision-making process.



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STOP THE RED PALM WEEVIL CONTRIBUTION OF THE IPPC TO PREVENT THE ENTRY AND SPREAD OF THIS PEST

IPPC Seminar: Stop the Red Palm Weevil Contribution of the IPPC to prevent the entry and spread of this pest Wednesday 29th of March 2017 from 12.30 to 13.30

The Red Palm Weevil (RPW) (*Rhynchophorus ferrugineus*) (Coleoptera: Curculionidae) is a key pest of palms originating from Southeast Asia. This pest has significantly expanded its geographical and host range during the last three decades. In the Near East and North Africa (NENA) region, RPW is causing widespread damage to date palm, resulting in significant economic and environmental impact. In the Middle East, RPW has been the most destructive insect pest of date palm. In 2009, annual losses in the Gulf region of the Middle-East due to removal of severely infested palms has been estimated to range from 1.74 to 8.69 million USD at 1 and 5% infestation, respectively.

The International Plant Protection Convention's (IPPC) mission is to protect cultivated and wild plants by preventing the introduction and spread of pests. IPPC's work facilitates economic growth and trade development, enhances global food security, protects sustainable agriculture and protects the environment, forests and ecosystems. The IPPC standard setting and implementation activities are crucial components that help prevent the Red Palm Weevil from entering new countries and spreading. The IPPC



operates through National and Regional Plant Protection Organizations (NPPOs and RPPOs). The Near East Plant Protection Organization (NEPPO) intends to transform the challenge of preventing and managing the Red Palm Weevil into an opportunity to strengthen phytosanitary cooperation in the region. Tentative programme:

1. *Introductory Remarks* by Dr. Jingyuan Xia, the IPPC Secretary.
2. *Opening Remarks* by H.E. Mohammed Ahmed M. Alghamdi, Ambassador of Saudi Arabia to FAO.
3. *Lessons learnt from the management of the Red Palm Weevil* by Dr. Michel Ferry, Scientific Director of the Phoenix Research Station, French National Institute for Agricultural Research.
4. *How implementing the IPPC standards contributes to effective management of the Red Palm Weevil?* by Ms. Sarah Brunel, Capacity Development Officer from the IPPC.
5. *Regional and National Perspectives of Red Palm Weevil management in Maghreb countries* by Dr. Mekki Chouibani, the Executive Director of NEPPO; Dr. Fethia Helalli, NPPO of Tunisia to present the Tunisian experience to manage Red Palm Weevil.

CIHEAM SIDE SESSION: BIONOMICS-BASED RPW IPM

CIHEAM SIDE SESSION: BIONOMICS-BASED RPW IPM.

Within the context of the scientific consultation and high-level meeting on red palm weevil management, Rome, 29-31 March 2017. The International Center for Advanced Mediterranean Agronomic Studies (CIHEAM) organized a scientific session on 30 March 2017 in the Hall of Iraq under the title of Bionomics-Based Red Palm Weevil IPM. The session was chaired by Professor Dr. Ibrahim Al-Jboory, and Khaled Djelouah as a rapporteur with the presence of Mr. Biagio Di Terlizzi, the vice director of CIHEAM Bari.

The scheduled program included an introductory remark by Biagio Di Terlizzi, who stressed the role of the CIHEAM in the Mediterranean and Middle East countries, to control some emerging pests and pathogens. Then, five distinguished topics have been presented in this session:



1-The RPW as vector of Bacteria, Fungi and Acari (Porcelli F.^{1,4,5}, Scrascia M.², Pazzani C.²,

Pollastro S.¹, Di Palma A.³, Russo V.⁴, Roberto R.¹, Salerno M.¹, Valentini F.⁴, Djelouah K.⁴; 1 DiSSPA UNIBA Aldo Moro, 2 Dipartimento di Biologia UNIBA Aldo Moro; 3 Dipartimento di Scienze Agrarie, degli Alimenti e dell'Ambiente UNIFG, 4 CIHEAM-IAMB, 5 CNR-IPSP Bari)

2- **The RPW infestation elicit a control-factor repressive environment (Scrascia M.¹, Pazzani C.¹, Valentini F.², Oliva M.¹, Russo V.², D'Addabbo P.¹, Stallone G.³, Roberto R.⁴, Porcelli F.^{2,4,5}; 1 Dipartimento di Biologia UNIBA Aldo Moro, 2 CIHEAM-IAMB, 3 Volatome Srl, 4 DiSSPA UNIBA Aldo Moro, 5 CNR-IPSP Bari)**

3- **Weevil larvae diet: histophagy VS plasmophagy (Suma P.¹, Mazzeo G.¹, Russo T.², Salerno M.³, Porcelli F.^{2,3,4}; 1 Di3A UNICT, 2 CIHEAM-IAMB, 3 DiSSPA UNIBA Aldo Moro, 4 CNR-IPSP Bari)**

4- **Putative glandular territories associated with *Rhynchophorus ferrugineus* ovipositor. (Russo V.¹, Salerno M.², Porcelli F.^{1,2,3}; 1 CIHEAM-IAMB 2 DiSSPA UNIBA Aldo Moro, 3 CNR-IPSP Bari)**

5- **Role of *Beauveria bassiana* on plant defence, biocontrol and insect behaviour modification (Lopez-Llorca L.V.; Department of Marine Sciences and Applied Biology University of Alicante)**

ARAB SOCIETY FOR PLANT PROTECTION NEWS

The Arab Journal of Plant protection is now included in Scopus. Scopus is considered the largest database for abstracts and reference citations for refereed articles in scientific journals, books and conference proceedings, and reflects on research achievements in science and technology around the world. The Editorial Board of the Arab Journal of Plant Protection (AJPP) received a letter from the Scopus Evaluation Team indicating that after thorough evaluation of the journal by the Content Selection & Advisory Board (CSAB), they indicated that the review is now complete and the CSAB has advised that the AJPP will be accepted for inclusion in Scopus. The evaluation summary included the following statement: "This journal fills a nice niche in the area of plant protection in the Middle East. The Editors have a solid standing in the area of plant protection and the members of the editorial board represent the geographical areas the journal is focused on." The Arab Society of Plant Protection is happy with this achievement, and the inclusion of AJPP in Scopus is an additional indication of the journal good quality and encourages the journal editors to maintain the standard achieved so far and do their best to further improve the journal to insure wider dissemination in the region and the world

Welcome to the 12th International Arab Congress of Plant Protection 4-10 November, ACPP 2017 Hurghada – Egypt (Towards Future Secure Agricultural Production)

INVITATION

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

DATE and VENUE

The Congress will be held at the SEAGULL BEACH RESORT, Hurghada, Egypt from 4 to 10 November 2017.

CONGRESS BOARD

President of the Agric. Res. Center, Congress Chairman

Prof. Dr. Ibrahim H. Al-Abassi, Congress Vice-chairman, Prof. Dr. Mortada A. Essa Congress Manager, Prof. Dr.

Mohamed E. El-Zemaity, President of ASPP

CONTACTS

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

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

E-mail: acpp2017@arc.sci.eg

Phone/ Fax: +202-33372193

Mobile: +201274998314



acpp2017

IMPORTANT DATES

Registration	Dates
Last date for submission of abstracts	31 st May, 2017
An announcement regarding acceptance of abstracts	1 st July, 2017
Last date for full paper submission (optional)	1 st July, 2017
Third announcement with detailed program	1 st October 2017

CONGRESS LANGUAGE

Arabic (Official) for paper presentation and English for symposia presentations.

REGISTRATION FEES (Hotels NOT included):

Participation Type	Egyptians (Egyptian Pound)	Non-Egyptians (US \$)
ASPP members	1500	150
Graduate Students	900	60

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

ACCOMMODATION (Full board in a single or double bed room per person for 6 nights and ,lunch, dinner, snacks Transportation to and from Cairo and Congress trip):

Participation Type	Egyptians (Egyptian pounds)		Non-Egyptian\$	
	Single Room	Double Room	Single Room	Double Room
ASPP members	1100	2000	400	275
Graduate Students	1100	2000	400	275
Accompanying persons (No congress fees)	1500	2250	450	300

Reservation should be made through the organizing committee

PAYMENT OPTIONS

Please, kindly request to pay for registration Cash at the conference venue.

CONGRESS PROGRAM

The Congress program includes various concurrent sessions. Each session will include a number of contributed papers and posters. The congress will also organize four symposia on some important plant protection topics in the Arab world, where distinguished speakers from many countries are invited to participate.

A) Congress Topics

1. Economic insect and animal pests
2. Integrated management of Phytopathogens
3. Etiology and epidemiology of plant diseases
4. Natural enemies and their role in pest management
5. Post-harvest pests
6. Effect of environmental changes on insect pests, plant pathogens and natural enemies
7. Date palm pests
8. Bio-pesticides

9. Nanotechnology for pests and Plant diseases control
10. Safe use of agrochemicals
11. Quarantine regulations and phytosanitary measures
12. Integrated pest management
13. Genetic engineering and pest control
14. Integrated control of weeds
15. Apiculture and Sericulture

B) Symposia

Keynote address in the opening session of the congress

Title: Building bridges between plant protections disciplines of sustainable management of crop pests. Invited speaker: Dr. Rangaswamy Muniappan, International Association of Plant Protection Sciences (IAPPS), Virginia Tech, USA (muni@vt.edu)

Proposed Symposia

Symposium I. Implications of disease and insect pest's biology and ecology on designing pest management strategies.

1. Understanding the biology of a pathogen is critical for its management: a case study from the USA. Invited speaker: Dr. Mohamed Khan, North Dakota State University and the University of Minnesota, USA (mohamed.khan@ndsu.edu).
2. IPM of soil-borne pests and sustainable food production. Invited speaker: Dr. Abdelfattah A. Dababat, CIMMYT, Turkey (a.dababat@cgiar.org).
3. Effects of insect vector movement in developing and deploying integrated disease management strategies for whitefly-transmitted viruses. Invited speaker: Dr. Judith K. Brown, the University of Arizona, USA (jbrown@cals.arizona.edu).
4. Risk analysis and its impact on prevention and control measures of economic important pests. Invited speaker: Dr. Martin Ward, EPPO (martin.ward@epo.int).

Symposium II. Advanced technologies and plant protection.

1. Use of remote sensing and GIS for developing improved crops IPM strategies. Invited speaker: Dr. Burkhard Golla, Julius Kuhn-Institute, Germany (Burkhard.Golla@julius.kuen.de).
2. Development of integrated fine scale systems for informed decision making in sustainable crop protection. Invited speaker: Dr. Vittorio Rossi, University Cattolica, Italy (Vittorio.rossi@unicatt.it).
3. Overview of novel techniques for sustainable pest management in protected and open field agriculture. Invited speaker: Dr. J. Meyer, Bayer AG, Monheim, Germany (Joachim.meyer@bayer.com).
4. The use of molecular tools in developing pest resistant crops. Invited speaker: Dr. Alaadin Hamwiyeh, ICARDA, Cairo, Egypt (alaadin.hamwiyeh@cgiar.org).

Symposium III. Impact of climate change on plant protection under Mediterranean and oasis conditions.

1. Climate change and plant health. Invited speaker: Dr. Jingyuan Xia, IPPC-FAO, Rome, Italy (xia.jingyuan@fao.org)
2. Role of Information packages for potential effects of climate change on crop pest dynamics. Invited speaker: Dr. Mahmoud Medany, Ministry of Agriculture, Egypt (rumedany@yahoo.com)
3. Climate change and plant disease management in the Mediterranean region: present status and future needs. Invited speaker: Dr. Ilaria Pertot, Edmund Mach Foundation, Italy (ilaria.pertot@fmach.it).
4. The impact of Climate change induced by global weather engineering technology of "Chemtrails" on Plant Protection. Invited speaker: Dr. Monir El-Husseini, Cairo University, Egypt.

Symposium IV. Management of newly emerging and serious pests: the case of olive decline caused by *Xylella fastidiosa*, a threatening disease to olive production in the Mediterranean basin.

1. Research progress on *X. fastidiosa*: biology, genetics and control. Invited speaker: Dr. Giovanni Martelli, University of Bari, Italy (martelli@agr.uniba.it).
2. Experience gained from efforts to contain an olive decline in southern Italy and research needs to manage it in the Mediterranean region. Invited speaker: Dr. Anna Maria D'Onghia (dongia@iamb.it) and Dr. Thaeer Yassin (y.thaer@gmail.com), IAM-B, Italy.

3. Innovative methods for the fast and efficient detection of pathogens inducing decline of olive trees. Invited speaker: Dr. Khaled Djelouah, IAM-B, Italy (djelouah@iamb.it).
4. The status of X. Fastidious in the Arab region and the efforts underway to contain it. Invited speaker: Dr. Shoki Al-Dobai, FAO-RNE, Cairo Egypt (Shoki.Al-Dobai@fao.org).

C) Daily Schedule

Saturday, 4/11/2017

Travel from Cairo to Hurghada by buses (2-3 different timings) (Details later).

14:00 - 20:00 Registration at the Congress venue.

Sunday, 5/11/2017

08:00 – 09:00 Registration
 09:00 – 10:30 Opening Ceremony (Including the keynote address)
 10:30 – 11:00 Coffee/Tea Break
 11:00 – 13:00 General Lectures (Symposium I)
 13:00 - 14:00 Lunch
 14:00 – 18:00 Concurrent Sessions of Oral Paper Presentations
 18:00 – 20:00 *Tuta absoluta* Workshop
 20:00 – 21:00 Dinner

Monday, 6/11/2017

08:30 – 10:30 General Lectures (Symposium II)
 10:30 – 11:00 Coffee/Tea Break
 11:00 – 14:00 Concurrent Sessions of Oral Paper Presentations
 14:00 – 15:00 Lunch Break
 15:00 – 17:00 Concurrent Sessions of Oral Presentations + Poster Session
 18:00 – 20:00 ASPP General Assembly Meeting
 20:00-21:00 Dinner

Tuesday, 7/11/2017

8:00- 18:00 Touristic trip to Luxor

Wednesday, 8/11/2017

08:30 – 10:30 General Lectures (Symposium III)
 10:30 – 11:00 Coffee/Tea Break
 11:00 – 14:00 Concurrent Sessions of Oral Paper Presentations
 14:00 – 15:00 Lunch Break
 15:00 – 17:00 Concurrent Sessions of Oral Presentations + Poster Session
 18:00 – 19:30 Election of the new ASPP Executive Committee
 20:00 – 22:00 Dinner Party

Thursday, 9/11/2017

08:30 – 10:30 General Lectures (Symposium IV)
 10:30 – 11:00 Tea Break
 11:00 – 12:30 Concurrent Sessions of Oral Paper Presentations
 12:30 - 01:00 Closing Session
 01:00 – 02:00 Lunch Break
 02:00 Free Time

Friday, 10/11/2017

08:00 Departure to Cairo (by Buses)

1-FOREIGN EXCHANGE

The official currency is the Egyptian pound (L.E.). Foreign exchange facilities are available at the airport, banks and exchange offices. The current exchange rate of one US Dollar is around 17.00 L.E.

2-ENTRY VISA

Participants are responsible for obtaining their entry visas. Please contact the Egyptian Embassy or Consulate nearest to you in order to obtain an entry visa before your departure. To avoid any inconveniences, it is important

that you check the visa requirements ahead of time.

3-ARRIVAL TO CAIRO / HURGHADA

Public buses and/or taxis are available at Cairo and Hurghada International Airports. The participants coming to Cairo first are requested to inform the Congress Secretariat (at least 2 weeks earlier) with their arrival schedule to arrange for them joining the buses going to Hurghada on Saturday 4th of November 2017. The participants flying directly to Hurghada can use the taxis available at the airport to take them to the venue resort.

4-WEATHER CONDITIONS

November weather in Hurghada is moderate and nice. The temperature ranges between 25-30°C. Swimming and diving are popular.

5-PROGRAM FOR ACCOMPANYING PERSONS

Special guest programs will be announced during the conference for accompanying persons. More information will be available in the 3rd announcement.

6-GRADUATE STUDENTS AWARDS

Awards will be granted to the best 5 research papers presented by graduate students in plant protection. Graduate students should submit their application for the award by 1st of September, 2017. The requirements for these awards are:

- Applicants should be registered as graduate students (Diploma, M.Sc. or Ph.D).
- The paper presented by the candidate should not be already published somewhere else.
- The student's should provide a document to certify that the submitted title is a part of her/his thesis research prior to earning the degree.
- Submitted abstract should comply with the congress abstract format.

7-PARTIAL SUPPORT TO ATTEND THE CONGRESS

The Congress Organizing Committee will provide partial financial aid to a limited number of participants to attend the congress. Those who are interested should apply for such aid and fill the application form, which appears in this announcement, and send it to the Organizing Committee. Colleagues who receive support from their institutions are not eligible to apply. The last date for application is 1st of June 2017. The Organizing Committee will inform the applicants about the amount of support not later than August 15, 2017.

8-THIRD ANNOUNCEMENT

The 3rd Congress announcement will be mailed only to those who would have completed their registration form by 1st of October, 2017. The 3rd announcement will include more detailed information on the scientific program (sessions schedule), field trip, and programs for accompanying persons.

9-REGISTRATION FORM

12th Arab Congress of Plant Protection (ACPP2017) 4 – 10 November 2017, Hurghada - Egypt	
Title: (Prof/Dr/Mr/Mrs/Ms) First name: Second name:	
Family name:	
Date of birth:	Sex:
<u>Full postal address:</u>	
State/Province:	Pin code/Zip code: Country:
Phone :Fax:	Mobile:
E-mail:	
Participation type: Participation and presenting paper(s) Participation only	
The tentative title of my/our presentation:	
Author's name (s):	
Date: / /	Signature:

Registration Guidelines:

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

PARTIAL FINANCIAL SUPPORT APPLICATION FORM**12th Arab Congress of Plant Protection (ACPP 2017) 4 – 10 November 2017, Hurghada - Egypt**

(The deadline for receiving this form is June 1, 2017)

First Name: Middle Name: Family Name:

Mailing address:

.....

Tel: Email:

Title of abstract(s) to be presented:

Justification for requesting support:

I certify that the facts in this application are true and correct:

Signature:

Endorsement of the participant's Institute Head

I confirm that the applicant's Institute will not cover full costs of the above-mentioned participant to attend the 12th ACPP2017.

Name:

Position:.....

Email:

Date:

Signature:

Please return this completed form to 12th ACPP2017 Secretariat,

E-mail: acpp2017@arc.sci.eg

ABSTRACT SAMPLE**12th Arab Congress of Plant Protection (ACPP2017)
4 – 10 November, 2017, Hurghada - Egypt**

To be submitted before 31st May, 2017

First Name: Middle Name: Family Name:

Mailing address:

Tel: Fax: Email:

MANAGEMENT OF SOME ECONOMIC OLIVE PESTS WITH EMPHASIS ON THEIR BIOLOGICAL CONTROL IN EGYPT. Ahmed El Kenawy, [Ahmed El-Heneidy](mailto:aheneidy@link.net) and Khaled Djelouah International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM), MAI-Bari, Italy, and ²Dept. of Biological Control, Plant Prot. Res. Institute, Agricultural Res. Center, Giza, Egypt. 7 Nadi El-Said Street, Dokki, Giza, Egypt, Tel.: +201223233610, E-mail: aheneidy@link.net

The Mediterranean basin is the largest olive production area worldwide. More than 125 arthropod species attack olive plants and cause quantitative and qualitative losses of yield. This study was aimed to survey the economic olive insect pests in Egypt and to evaluate the role of bio-control agents in reducing their populations in olive orchards. During the period February – July 2012, a survey was carried out at two olive orchards at two different agro-

ecosystems (Middle Egypt and Coastal region). Samples were collected weekly in both orchards and number of pests' individuals and rate of infestation/ sample/ date/ site/ leaf (shoot) was counted and recorded; whereas, parasitoid species found associated with the pests were identified and their percentages of parasitism were estimated. The survey revealed the presence of five insect species; *Euphyllura straminea*, *Phloeotribus scarabaeoides*, *Saissetia oleae*, *Prays oleae* and *Palpita unionalis* on leaves and shoots of the surveyed olive trees. The month of May showed the highest populations of the five pest species; therefore, six hymenopteran parasitoid species, 4 primary and 2 secondary species, associated with the first 3 pests, were recorded. Agricultural practices showed a great impact on reducing the insect pest populations in the surveyed Egyptian olive orchards.

IMPORTANT NOTES (Read Carefully):

- 1) *Deadline for submission: 31st May, 2017.*
- 2) *Underline name of the person making the presentation.*
- 3) *Provide complete name and contact address (with Tel, Fax, and E-mail if available)*
- 4) *Make sure that the body of the abstract is written as one paragraph.*
- 5) *Complete the Arabic abstract should submit it together with this form.*
- 6) *Return to Congress Secretariat with by e-mail us on our web. Refer to address in this announcement.*

Tuta absoluta Symposium

12th Arab Congress of Plant Protection, 4-9 November 2017, Hurghada, Egypt

The organizing Committee of the South American Tomato Leaf miner, *Tuta absoluta*, would like to request submission of abstracts latest by 31 May 2017 (<http://www.acpp2017.sci.eg/ImportantDates.aspx>)

Please send your abstract with the following information to the organizers:

- Muniappan Rangaswamy, IPM Innovation lab, Virginia Tech, rmuni@vt.edu
- Mustapha El Bouhssini, ICARDA, Rabat, M.Bohssini@cgiar.org

Abstracts information :

- Title ,Names of authors, Addresses, Abstract not to exceed 500 words

GENERAL NEWS

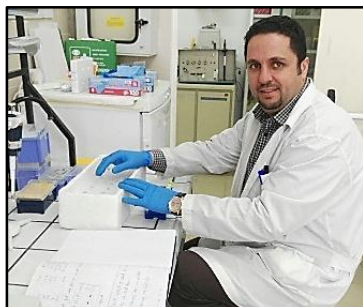
Early monitoring of *Xylella fastidiosa* using “Spy Insect”

Xylella fastidiosa, a vector-borne bacterium, has been recently reported in southern Italy infecting olive trees and more than 28 plant species. The pathogen induces typical leaf scorch and quick decline symptoms; however, many host plants may remain symptomless for years. Its spread by the adults of *Philaenus spumarius* (L.), the only assessed vector, seems very fast due to the poor agronomical practices in the olive groves (e.g. no tillage, no insect control) and to the warm climatic conditions which favour population density and extend the life of infected adults through the whole year. In addition to *P. spumarius*, other 2 insects as potential vectors were recorded, because able to harbour *X. fastidiosa*, *Neophilaenus campestris* (Fallén) and *Euscelis lineolatus* (Brullé). The three Auchenorrhyncha specimens used as ‘spy insects’, i.e. as indicators of the presence of *X. fastidiosa* in apparently uncontaminated. Insects are mainly collected from the ground vegetation or from the host plants using about 10 sweeps with the sweeping net. However, a D-Vac or yellow sticky traps may be also used but are less efficient. Adults of spy insects are carefully collected by aspiration directly *in loco*, put in small tubes containing 70% ethanol, codified and brought to the laboratory for testing and, eventually, identification. The list of the samples and relative code numbers is sent as excel file through XylApp, the application used for field data acquisition, to the laboratory for analyses and to the central web server, XylWeb. The bacterium is successfully detected in insects by molecular assays (real time PCR and real time LAMP). Nonetheless, real time LAMP is the preferred method because it is fast and accurate; moreover, the use of the field device allows the on-site detection of *X. fastidiosa* in insects and plant material. After results of testing, only the positive insects are identified using classification keys. Once a positive insect is found, the monitoring of the infection is carried out in a more capillary way in a 100mt radius from the positive sampled site, either collecting plant material from all plant hosts or capturing other insect's specimens. The presence of infected insects has two possible explanations: the first one is that the insects have acquired the bacterium from symptomless infected host plants present in the apparently “Xf-free” area; the second one is that the insects could have acquired the bacterium in the outbreak area and moved to the pathogen-free area through indirect

transport. This approach is effective for the early detection of the pathogen in the buffer zone and in the pathogen-free areas. Sampled site for insect captures should be located in the risky points of introduction (e.g. existing trade patterns, traffic ways, nurseries and sites where plants originating in risky areas are grown or kept). [**Thaer Yaseen, Franco Valentini, Franco Santoro, Anna Maria D’Onghia**, CIHEAM - Istituto Agronomico Mediterraneo di Bari, Valenzano ,Italy, (BA) 70010.

Grapevine Red Blotch-Associated Virus.

Grapevine red blotch-associated virus (GRBaV) is a single-stranded DNA virus, which was recently identified and proposed to be a member of the family *Geminiviridae*. This disease is considered an emerging threat for the grapevine industry (Sudarshana *et al.*, 2015). In red-berried cultivars symptoms consists of red spots or blotches that appear in late spring/early summer in the basal leaves and coalesce later in the season. By converse, white-berried cultivars display chlorotic areas with irregular margins which may turn necrotic over time. A differential diagnostic trait from *leafroll* consists on the presence of reddening of the veins on the underside of the leaf blade. It is not known whether there is any effect on fruit yield or plant longevity, however a delay in fruit ripening and a reduced sugar content of the

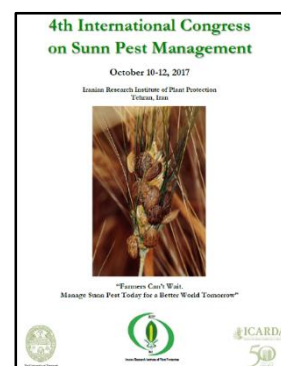


fruit juice has been observed. GRBaV is graft transmissible. A recent study showed that the three-cornered alfalfa hopper *Spissistilus festinus* (Hemiptera: Membracidae) was able to both acquire the virus from a grapevine infected with GRBaV and transmit the virus to healthy grapevines in the laboratory. Recently, this virus was put is on the “2015 Alert list” of the European and Mediterranean Plant Protection Organization (EPPO, 2015). [Raied Abou Kubaa, Researcher in CNR – National Research Council of Italy- Bari.



4th International Congress on Sunn Pest Management October 12-10, 2017.

“The Iranian Institute of Plant Protection (IRIPP) and the University of Vermont (UVM) in collaboration with the International Center for Agricultural Research in the Dry Areas (ICARDA) and the International Maize and Wheat Improvement Center (CIMMYT) are organizing the 4th International Congress on Sunn Pest Management to be held at IRIPP headquarters in Tehran, Iran, October 10-12, 2017. In view of the importance of this pest, as it accounts for annual grain losses of 20-30% in barley, and 50-90% in wheat in Central and West Asia and Eastern Europe, this Congress is planned to review the progress and recent advances in Sunn Pest management from 2004 through 2016. Another major goal is to develop international collegiality among Sunn Pest researchers and managers. All interested people are invited to attend this event to contribute through presentations, posters and/or participation in discussions. More information on Sunn pest and this congress are available at the following website: <http://www.uvm.edu/~entlab/sunnpest/index.html>”



SELECTED RESEARCH PAPERS

- **Host-Specific Relationship between Virus Titer and Whitefly Transmission of Cucurbit yellow stunting disorder virus.** William M. Wintermantel, *Plant Disease*, Vol. 100 :(1) 92-98, 2016.
- **Differential Transmission of Two Isolates of Wheat streak mosaic virus by Five Wheat Curl Mite Populations.** E. N.Wosula, A. J.McMechan, and C. Oliveira-Hofman, Vol. 100 :(1) 154-158, 2016.
- **Effects of Development of Ontogenic Resistance in Strawberry Leaves upon Pre- and Postgermination Growth and Sporulation of *Podosphaera aphanis*.** Belachew Asalf, Vol. 100 :(1) 72-78, 2016.
- **Controlling *Rhizoctonia* Damping-off of Chinese Mustard by Using Endomycorrhizal *Rhizoctonia* spp. Isolated from Orchid Mycorrhizae.** Jr-Hau Jiang and Si-Loi Tam, Vol. 100 :(1) 85-91, 2016.
- **Surveys of Viruliferous Alate Aphid of Plum Pox Virus in Prunus mume Orchards in Japan.** Kota Kimura, Vol. 100 :(1) 40-48, 2016.
- **Effect of Trap Colour and Trap Height Above the Ground on Pheromone Mass-Trapping of the Red Palm Weevil *Rhynchophorus ferrugineus* (Coleoptera: Dryophthoridae) in Date Palm Groves in Abu Dhabi, U.A.E.** *Boletín de la Sociedad Entomológica Aragonesa (S.E.A.)*, 59: 247–253, 2016.
- **Identification of the Genes Involved in Odorant Reception and Detection in the Palm Weevil *Rhynchophorus ferrugineus*, an important quarantine pest, by antennal transcriptome analysis.** Binu Antony, Alan Soffan, Jernej Jakše, Mahmoud M. Abdelazim, Saleh A. Aldosari, Abdulrahman S. Aldawood and Arnab Pain. Antony et al. *BMC Genomics*, 17:69, 2016. [DOI 10.1186/s12864-016-2362-6](https://doi.org/10.1186/s12864-016-2362-6)
- **Two fatty acyl reductases Involved in Moth Pheromone Biosynthesis.** Binu Antony, Bao-Jian Ding, Ken'ichi Moto, Saleh A. Aldosari & Abdulrahman S. Aldawood. *Scientific Reports* .6:29927, [DOI: 10.1038/srep29927](https://doi.org/10.1038/srep29927), 2016.
- **Silencing the Olfactory Co-Receptor RfcrOrco Reduces the Response to Pheromones in the Red Palm Weevil, *Rhynchophorus ferrugineus*.** Alan Soffan, Binu Antony, Mahmoud Abdelazim, Paraj Shukla, Witjaksono Witjaksono, Saleh A. Aldosari, Abdulrahman S. Aldawood. *PLOS ONE*, [DOI:10.1371/journal.pone.0162203](https://doi.org/10.1371/journal.pone.0162203), 2016.

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

REVIEW PAPER: BENEFICIAL INSECTS

A review of most common honey bee viruses worldwide: part II.

H.S. Barhoom, H.A. El-Roz and A.M. Mouhanna (SYRIA)

Pages 156-166 <http://dx.doi.org/10.22268/AJPP-034.3.156166>

NATURAL ENEMIES

Survey of fruit fly species and their associated parasitoids on some Asteraceae weeds in southern Syria.

A.N. Bashir, L. Aslan, G. Ibrahim and F. Abdel-Razzak (SYRIA)

Pages 167-179 <http://dx.doi.org/10.22268/AJPP-034.3.167179>

Relative densities of the parasitoids and predators associated with the olive fruit fly *Bactrocera oleae* (Gmelin) at Khan-Arnaba, El-Qunitera, Syria.

A.N. Bashir, A.N., L. Aslan and F. Abdel-Razzak (SYRIA)

Pages 180-186 <http://dx.doi.org/10.22268/AJPP-034.3.180186>

Survey of phytophagous mites and their predators on natural vegetation in lemon orchards in Latakia governorate, Syria.

S. Qurhaily, Z. Barbar and L.H. Aslan (SYRIA)

Pages 187-193 <http://dx.doi.org/10.22268/AJPP-034.3.187193>

HOST RESISTANCE

Effect of mycorrhiza in inducing systemic resistance of tomato against *Pythium ultimum* through activation of methyl jasmonic hormone.

M.E. Khreibeh, I. Ghazal, M.F. Azmeh and W. Shuman (SYRIA)

Pages 194-201 <http://dx.doi.org/10.22268/AJPP-034.3.194201>

INTEGRATED PEST MANAGEMENT

The economic viability of integrated weed management in onion (*Allium cepa* L.) in Yemen.

A.A. Bawazir and O.S. Bin Shuaib (YEMEN)

Pages 202-210 <http://dx.doi.org/10.22268/AJPP-034.3.202210>

ENTOMOPATHOGENS

A preliminary study of honey bee paralysis virus in some provinces of Syria.

A.M. Mouhanna (SYRIA)

Pages 211-219 <http://dx.doi.org/10.22268/AJPP-034.3.211219>

SURVEY

Survey and identification of leaf miner species (Agromyzidae) on some plants in Baghdad.

R.F. Al-Jassany, I.M. Al-Mallo and R.K. Al-Joboory (IRAQ)

Pages 220-223 <http://dx.doi.org/10.22268/AJPP-034.3.220223>

MORPHOLOGY

Morphological description of the onion bug *Dionconotus neglectus neglectus* (Fabricius, 1798) (Hemiptera: Miridae) and its host plants in Syria

A.Y. Ali (SYRIA)

Pages 224-227 <http://dx.doi.org/10.22268/AJPP-034.3.224227>

PAPERS, WHICH WILL BE PUBLISHED IN THE ARAB JOURNAL OF PLANT PROTECTION (AJPP), VOLUME 35, ISSUE 1, APRIL 2017

- **Reaction and Growth of Cucumber Hybrids Grafted on Hybrid Squash in Response to Infection with Fusarium wilt Disease.** A. Ibrahim, O. Hammoudi, G. Asmar and N. Sheikh Suleiman (SYRIA).
- **New Record of the Golden Apple Snail *Pomacea canaliculata* in Iraq.** R.F. Al-Jassany and M. M. Al-Hassnawi (IRAQ).
- **Susceptibility of Some Local Grape Varieties Cultivated in Southern Syria to Powdery Mildew Caused by *Erysiphe necator* Schwein.** N. Alimad, W. Naffaa and F. Azmeh (SYRIA).
- **Efficacy of a Local Isolate of *Beauveria bassiana* (Bals.)Vuil. On the Mortality of Tomato Leaf Miner (*Tuta absoluta* Meyrick) Larvae.** M. Ahmed, I. Ghazal, L. Rajab and A. Haj Hasan (SYRIA).
- **Evaluation of Efficacy of Four Bacterial Strains of Plant Growth Promoting Rhizobacter to Induce systemic resistance against *Cucumber mosaic virus* in tomato plants grown in the greenhouse.** H. Kawas, O. Hamoudi, A. Ahmad and I.D. Ismail (SYRIA).
- **The Effect of Acetylsalicylic Acid on Conidia Germination of Some Pathogenic Fungi, and Evaluation of its Effectiveness Against Tomato Leaf Mold Disease caused by *Cladosporium fulvum* Cooke Under Greenhouse Conditions.** L. Al-Matroud, R. Al-Baghdadi, S. Al-Masri Arafeih, A. Al-Ghazawi, S. Al-Chaabi and T. Abu-Fadel (SYRIA).

EVENTS OF INTEREST

2017 - 2018

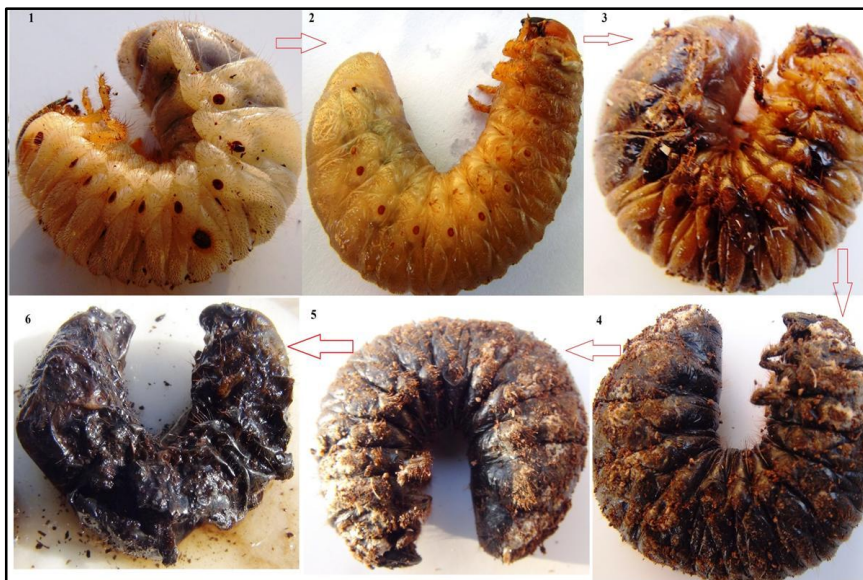
6-9 May,2017	2nd International Conference on the Arab Impact Factor, Egypt. http://confs.naturalspublishing.com/iciaif2017/index.asp?pgid=2
17 - 18 May, 2017	International Congress Algeria Facing Food Security: Reality & Perspectives, Algiers Algeria.
20-23 June,2017	15 th Congress of The Mediterranean Phytopathological Union, Plan Health Sustaining Mediterranean Ecosystems. Cordoba-Spain, www.mpunion.com
26-29 June,2017	The 3rd International Conference on Agricultural and Biological Sciences (ABS 2017), in Qingdao, Shandong Province, China. http://www.absconf.org/index.html
25-27 July, 2017	International Conference on Emerging Trends Integrated Pest and Disease Management for Quality Food Production (IPM), Sarawak, Malaysia. https://www.mypadnow.com/ipm2017
11-15 September,2017	The 5th International Symposium on Biological Control of Arthropods, Langkawi, Malaysia. http://www.isbca-2017.org
11-15 September 2017	The 6th International Cereal Nematodes Symposium, Agadir-Morocco. https://www.dropbox.com/s/j8fosbsl31oc6uu/ICNI2017-AGADIR-MOROCCO-FLYER%2013-12-16.pdf?dl=0
12-15 September, 2017	Asian Conference on Plant Pathology 2017 Jeju Island, South Korea. acpp2017.org/
25-27 September 2017	The 21st Australasian Plant Pathology Society conference., Brisbane, Queensland, www.apps2017.com.au/
10-12 October, 2017	4th International Congress on Sunn Pest Management, Iranian Research Institute of Plant Protection Tehran, Iran.
5-8 October ,2017	8th International Agriculture Symposium"AGROSYM 2017"-Bosnia & Herzegovina http://www.agrosym.rs.ba/index.php/en/
5-9 November, 2017	12 th Arab Congress of Plant Protection, ACPP 2017, Hurghada, Egypt. www.acpp2017.sci.eg
29 July – 03 Aug, 2018	11th International Congress of Plant Pathology (ICPP2018), Boston, Massachusetts, USA. www.icpp2018.org
19 -24 July,2020	XXXVI International Congress of Entomology, Helsinki, Finland. www.ice2020helsinki.fi

SELECTED PESTS FROM ARAB AND NEAR EAST COUNTRIES

Rhynchophorus ferrugineus ovipositor (Copyright Francesco Porcelli, University of Bari Aldo Moro, 2017)



Larvae of date palm borers *Oryctes* infected by Entomopathogenic nematodes *Rhabditis blumi* (Copyright: Mohamed Zeadan Khalaf, Assp2017)



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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.