



## ARAB AND NEAR EAST PLANT PROTECTION NEWSLETTER



Food and Agriculture  
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United Nations

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# EDITORIAL

## **The Potentials and Limitations of Consumer Response to Agricultural Commodities Qualities Produced According to Integrated Pest Management Concepts in the Arab World**

The qualitative progress that occurred in the agricultural sector after the Second World War had helped to make significant increase in agricultural production and led to self-sufficiency of various crops in many countries of the world including some Arab countries. However, because of environmental pollution associated with the use of chemical compounds, many non-agricultural community members expressed a negative attitude towards modern agriculture. After the seventies of the twentieth century and with the rapid development in the application of pest management programs along with the trend towards integrated production programs (IP), there was a significant decrease in the quantities of pesticides used. The trend was towards moving away from wide spectrum dangerous compounds to safer and specific alternatives to be used against the target pest. However, this change did not have a significant impact on the consumer and society impression towards agriculture in many countries of the world including most Arab countries. The Results of questionnaires from around the world indicated that the consumer in most of the surveyed regions prefers the use ecological friendly substances in agricultural production, and agricultural commodity labels should include clear information. This approach has encouraged some institutions in a number of countries to issue certificates for such products in an effort to attract the attention of consumers who read the information before buying the goods. Such consumer's awareness led to perception and concerns increased adoption of pest management programs that focuses on the use of environmentally safe pest control measures. Furthermore, when the concept of organic agriculture was introduced, organic products ranked first in terms of consumer demand and with marketing competition between integrated management products and organic products depending on the price and quality of the product.



The challenge facing products of pest management systems is how to educate the consumer to understand the importance of the environmental label used with the marketing packages of agricultural commodities for describing the quality of the product. In order to achieve such aim, the information written in the label should be clear and based on environmental principles, along with some criteria that are used for crop evaluation and certification. Several criteria have been used to describe the products of pest management systems, some of which are input dependent, and others are output-dependent. Some other criteria depend on the measurement of farmers activities in term of implementing integrated management technologies and abiding by the international guidelines set for this purpose.

The modern channel of awareness is the internet which represent an outstanding mean for the dissemination of the basis and standards of agricultural products certification within certain sites on this network to be accessible and within reach of the largest number of beneficiaries. Examples of such sites include the International Organization of Biological Control (IOBC), Integrated Production (IP), and Integrated Fruit Production (IFP). The idea of this kind of information dissemination was initiated during the 1980s with the aim of introducing the products of pest management systems. It was started with some types of fruit (IFP) and expanded to include many types of deciduous fruit, citrus, varieties of tropical fruits, various field crops and vegetables, and various animal products. Standards under the IP and IOBC guidelines were used as the general framework for the approved criteria and standards for the certification guide used in each region or country. However, the Apples Certification Program released in the State of Washington in the

USA, called Responsible Choice (RC), was the first certification program involving a number of apple growers in the State. This program depended basically on the standards already used in IFP and IOBC with the introduction of paragraphs concerning environmental impact of pesticides if used. In European countries, a similar certification program has been adopted. The program called Linking Environment and Farming (LEAF) was used in Britain, primarily focusing on the assessment of farmer himself about the environmental and economic consequences associated with residues of pesticides used or likely to be used in farm management. In the Arab countries there are successful experiences in the production and marketing of agricultural goods produced within the programs of integrated pest management and organic agriculture.

However, the response of the consumer's to these products and their local marketing is still limited in most countries, as the case in many other countries in the world, especially the developing countries. This may be attributed to one or more of the following factors:

1. Institutional barriers that may occur between farmer groups, educational institutions (universities) and government institutions. Governmental subsidies may be limited or absent.
2. There are no serious precautions of the consumer's view about other products to make them convinced that these commodities are of poor quality.
3. The process of displaying goods in shopping centers may not be appropriate for promoting the products of pest management because of the diversity and availability of alternative products that are usually affected by the time of year and the prices set for each product, giving the consumer a confident satisfaction to choose what suits him without considering the issue of presence or absence of the pest management mark.
4. The use of IPM and other terms written on the label was faced by a number of questions related to consumer acceptance of integrated management products, especially in the early stages when some consumers believed that these names are strange or complex and difficult to understand, and they believed that the concept of integrated management is inconsistent with their preferences to get their needs of various commodities at logical prices.

Therefore, the success and distribution of pest management applications and marketing products in terms of input and output depends on popular understanding which can be seen in two approaches, the first is focusing on educating and training farmers on the use of pest management technologies as well as their involvement in some activities, perhaps field research, to deepen their conviction about the feasibility of implementing pest management technologies and their impact on increasing production, reducing health and environmental risks and raising awareness about the risks of pesticide residues in agricultural products. One of the most effective and recognized means of education was Farmers Field Schools (FFS). The second approach is related to consumers whom must have sufficient understanding about the risks of pesticide residues in agricultural products and the benefits achieved by adopting pest management applications and their impact on the quantity and quality of food production. Activities related to consumer awareness can be made through the media or through educational seminars and through associations concerned with environmental protection in order to clarify the dangers of pesticides to public health and to the environment. However, these efforts may not be enough by themselves to enhance consumer's satisfaction. Therefore, there is a continuous need to strengthen cooperation between the intended authorities in each country with the relevant international organizations and institutions in to disseminate the concept of integrated pest management and its applications, as well as updating recent information for sustainable agricultural production for the benefit of the world communities in the coming years.

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### INVASIVE AND NEW PESTS

#### ALGERIA

**Contribution to the Study of a New Date Palm Pest *Oryctes agamemnon* in the Palm Groves of El-Oued, Algeria.** A survey concerns *Oryctes agamemnon* in El-Oued governorate (Algeria) next to the border of Tunisia. Its aim is to study the spread and the damages caused by this pest, in three stations: Taleb Larbi, Ben Guecha, and Douar El-ma. In all 60 prospected farms, the insect damage was estimated at an average of 53.75%. The highest level of infestation was recorded in Taleb Larbi and Douar El-ma with 75 and 65%, respectively. However, Ben Guecha station was marked by the lowest rate of infestation and this was probably due to the presence of the Ghouts-type farms and/or the sandy and relatively wet soils increase juvenile stages proliferation. It has been also noted that the third larval stage was the most harmful stage due to its long development duration and its voracity. The difference in the recorded infestation rate can be explained by the geographical location nearby the Tunisian infested palm groves, soil nature, date palm seedlings origin and / or the poorly maintained palm groves. Concerning the varietal sensitivity, Deglet Nour exhibited the most serious damage in comparison with Ghars variety with severe infestations on roots and trunks. Therefore, the real threat of this insect will be the infestation expansion to new palm groves where the damage can be severe. [Chouia, A., Guerfi, Z., and Sadine, S.E. (Algeria), *Tunisian Journal of Plant Protection* 13 (si): 159-170, 2018].

#### IRAQ

**New Record of Genus *Urentius* and Species *U. euonymus* (Hemiptera: Heteroptera: Tingidae) in Baghdad.** A new record of lace bug genus *Urentius* was recorded for the first time in Iraq. Three hundred fifty males and females individuals were collected in 20/7/2017 from the leaves of weed *Chrozophora tinctoria* (Euphorbiaceae) at College of Agriculture, Abu- Gharib area, and Al-Jaderia on 11/9/2017. Insects were identified based on morphological characters following the genus key. [Haneen Sabah Hussien and Awatif Abdul- Fatah Hamodi (Iraq), *Pak. J. Biotechnol.*, 15(2): 283-285, 2018]. [www.pjbt.org](http://www.pjbt.org)

#### SYRIA

**First Record of Parasitoid *Leptomastidea abnormis* (Girault, 1915), (Hymenoptera: Calcidioidea: Encyrtidae) on the mealybug *Planococcus citri* (Risso) (Homoptera: Chalcidoidea: Encyrtidae).** *Leptomastidea abnormis* is a parasitic wasp, about 0.75-1.5 mm. The body of both females and males is yellow - brown to gray in color. Females often have a light-colored band across their abdomen. The wings have three black belts that are strikingly upright. Males are generally smaller than the females and have hairy antennae. A female lays her eggs especially in the second and third instar of the mealybug. One egg per mealybug is laid. The wasp larvae feed inside the mealybugs. The mealybug turns into a darker orange cocoon mummy that is often difficult to see in the crop. The cocoon finally drops from the plant. Parasitized mealybugs swell to orange yellow colored pupae, which are often difficult to spot because they are very small. When the wasp has hatched, there is a round hole at the end of the pupa. [Abdulnabi Basheer, Louai Aslan, Biological Control Studies and Research Center, College of Agriculture, Damascus University, and Nadia Alkhatib Director of Lattakia center for mass rearing of natural enemies, Directorate Agriculture, Syria. 2018]

**New Records of Three Larval Erythraeidae (Acari: Trombidiformes) from Syria.** Most larvae of Erythraeidae are considered as parasites of various insect species and their adults seem to be effective generalist predators of several agricultural pests. Studies of this fauna is limited in Syria. The present study aimed to identify mite species of Erythraeidae in the environment of a free pesticide citrus orchard in Latakia governorate, Syria. Surveys were carried out three times in 2016 and 2017. Three erythraeid species were collected and all belongs to the genus *Erythraeus* : *Erythraeus (Erythraeus) phalangoides*, *Erythraeus (Erythraeus) adanaensis* and *Erythraeus (Zaracarus) didonae*. This is the first report of these species from Syria. Morphological remarks of each species collected are provided. [Barbar, Z. (Syria), *Syrian Journal of Agricultural Research*, 5(1): 183-190, 2018].

## SUDAN

**First Report of Cucurbit Aphid-Borne Yellows Virus Affecting Chickpea (*Cicer arietinum* L.) in Sudan.** A total of 204 chickpea samples with symptoms typical of virus infection including stunting, yellowing, necrosis, reddening, and tip wilting were collected during February 2013 and March 2015 from 14 chickpea fields located in Gizera, middle Gizera, Barbar, Shendi and Hudiba, Sudan. All samples were tested using tissue-blot immunoassay (TBIA) against a battery of legume virus antibodies including a broad-spectrum legume luteovirus monoclonal antibody (McAb) (5G4). To identify the luteoviruses affecting chickpea in Sudan, 41 chickpea samples that gave positive reaction to 5G4 McAb were tested using generic reverse transcription polymerase chain reaction (RT-PCR) Luteovirus primer pairs. Direct sequencing of these products indicated that 12 samples were related to *Cucurbit aphid-borne yellows virus* (CABYV, genus *Polerovirus*, family *Luteoviridae*). To confirm this data, all samples were tested again by RT-PCR using CABYV-specific primer CABYV3635F (5'-GAAACCGCCGACGCCCTAAT-3'; this study) and primer AS3. Results showed that 12 of the 41 samples that gave positive reactions to 5G4 McAb generated RT-PCR amplicons of the partial coat protein gene of the expected size (481 bp) and were considered positive for CABYV. Amplicons from two chickpea samples (isolates SuCp106-13 and SuCp122-13) were directly sequenced in both directions. After removal of primers, the resulting sequences were 435 nucleotides in length (GenBank accessions numbers MG933685 and MG933686). The two isolates shared 100% nt identity with each other and 96% nt identity with the type reference sequence for CABYV, NC\_003688. Moreover, we confirmed the presence of CABYV in RT-PCR positive samples serologically with TBIA using polyclonal antisera (provided by Lecoq, INRA, France). The observed symptoms in CABYV-infected chickpea plants were stunting, accompanied by leaf yellowing and necrosis and is likely to reduce yield similar to other Luteoviruses. Of the 204 virus-symptomatic plants we tested in this study, 12 were positive for CABYV (6% of the samples tested). Chickpea is an economically important crop in many countries of the world and knowing the exact identity of a virus affecting this crop in a region is essential for breeding for resistance and crop management purposes. CABYV and its aphid vector (*Aphis gossypii* Glover) were reported on cucurbit crops in many countries of the world with high yield loss. Further disease surveillance will be needed to determine if CABYV continues to impact chickpea production in Sudan and if it is also present in other chickpea production regions of the world. CABYV was reported recently on broad bean (*Vicia faba* L.) in Turkey, but based on our knowledge this is the first report of CABYV on chickpea in Sudan and worldwide. [Safaa G. Kumari, Abdul Rahman Moukahel, Abdelmagid Adlan Hamed and Murray Sharman. (1) International Center for Agricultural Research in the Dry Areas (ICARDA), Terbol Station, Beqa'a, Zahle, Lebanon, Email: [s.kumari@cgiar.org](mailto:s.kumari@cgiar.org); (2) Plant Pathology Research Program, Agricultural Research Corporation, Wad Medani, Sudan; (3) Department of Agriculture and Fisheries, Brisbane, Queensland, Australia. Plant Disease, 2018]. <https://doi.org/10.1094/PDIS-02-18-0347-PDN>

## MOROCCO

**First Report of Tomato leaf curl New Delhi virus infecting Zucchini in Morocco.** During spring 2017, generalized leaf symptoms including yellowing and curling, as well as stunting of plants, were observed in several zucchini (*Cucurbita pepo*) fields of one of the most common commercial Moroccan cultivars, Suha F1 (Sakata Vegetables Europe S.A.S.) in the region of Agadir, Morocco. Leaf samples from nine symptomatic and three asymptomatic plants were first tested for *Tomato leaf curl New Delhi virus* (ToLCNDV) infection with an ImmunoStrip kit. Only the symptomatic samples were positive for ToLCNDV infection. To confirm the identity of the virus, DNA was isolated from the symptomatic leaf samples and analysed by PCR. Amplicons were obtained from all the samples that had tested positive for ToLCNDV with the ImmunoStrip kit. PCR products were directly sequenced and BLAST analysis showed nucleotide identity higher than 99% with sequences from ToLCNDV isolates of Spain. This is thought to be the first report of the presence of ToLCNDV in Morocco. [Sifres, A.; Sáez, C.; Ferriol, M.; Selmani, E. A.; Riado, J.; Picó, B.; López, C. (Morocco), Plant Disease, 102 (5), pp. 1045, 2018]. DOI [10.1094/PDIS-10-17-1600-PDN](https://doi.org/10.1094/PDIS-10-17-1600-PDN)

## TUNISIA

**First Report of *Lobesia botrana* on *Daphne gnidium* in North of Tunisia.** In Tunisia, *Lobesia botrana* is a pest of grapevine. Larvae of *L. botrana* were observed for the first time in 2014 in Sejnane (Northwestern Tunisia) on *Daphne gnidium* and more recently, in 2017, in Delhiza (Northeastern Tunisia). Larvae need to enter into a bud at budburst to feed on young leaves. Pupae were observed from the end of May to early June on *D. gnidium* buds and adults emerged in June. After mating, female lays eggs by mid-June. In this paper, we present a first report of *L. botrana* on *D. gnidium* in Tunisia. [Hammami, S., Ezzine, O., Dhahri, S., and Ben Jamâa, M.L. (Tunisia), *Tunisian Journal of Plant Protection* 13 (si): 199-202, 2018].

**First Report of the Cyst Nematode *Heterodera mediterranea* on Olive Trees in Tunisia.** A survey was conducted in Tunisia to detect the presence of plant parasitic nematodes associated to olive trees. A high infection of olive roots and soil by the cyst nematode *Heterodera mediterranea* was detected in olive orchards located in the region of Moknine (Monastir, Sahel of Tunisia). Integrative taxonomic approaches (morphological, morphometrical and molecular analyses) were carried out in order to characterize the Tunisian population of *H. mediterranea*. Phylogenetic analyses of the ITS region, the D2-D3 expansion segments of the 28S rRNA gene and 18S rRNA gene highly supported that *H. mediterranea* from Tunisia belongs to the Schachtii group. So far, this is the first report of this nematode in Tunisia. Guesmi-Mzoughi, I., Troccoli, A., Fanelli, E., Radicci, V., Regaieg, H., Hadj-Naser, F., Horrigue-Raouani, N., and De Luca, F. (Tunisia), *Tunisian Journal of Plant Protection* 13 (1): 69-77, 2018].

## RESEARCH HIGHLIGHTS

## ALGERIA

**Influence of Grapevine Vigor on the Dynamic and the Installation of the Invasive Pest *Jacobiasca lybica* in Mitidja, Algeria.** The vigor of six grapevine varieties was followed over three consecutive years in order to evaluate and analyze its impact on the installation and selection of egg laying sites by an invasive bio-aggressor in Algerian vineyards. The vigor was estimated by weighing the pruning during dormancy period from December during three years. A total of ten vines were randomly selected along the diagonal of the plot. Although the distribution of *Jacobiasca lybica* seems to be slightly in favor of some grape varieties compared to others, host vigor seems to be one of the major parameters affecting the repartition and distribution of this pest. The examination of the **Principal Component Analysis (PCA)** showed many similarities; group 1 included the less vigorous varieties (namely Cardinal, Syrah and Muscat of Alexandria), followed by group 2 including the Dattier of Beirut. On the other hand, group 3 with Cabernet Sauvignon and group 4 with Merlot varieties, are considered the most vigorous, but did not show a correlation between larval infestations and adult populations. Furthermore, from a numerical point of view, these grape varieties have the highest number of individuals as much as adults than larvae. In contrast, it was observed a very pronounced adult trend with grape vigor. [ Bissaad, F.Z., Razi, S., and Bounaceur, F. (Algeria), *Tunisian Journal of Plant Protection* 13 (si): 139-145 ,2018].

**Some Observations on the Predominance of *Aphis spiraecola* on Citrus in Northwestern Algeria.** *Aphis spiraecola* is the main aphid species found on citrus in Algeria. This study was carried out on *Citrus clementina* in northwestern Algeria, during a two year period (2016-2017) in the first flushing period (spring). The aphid fluctuation of the populations and their natural enemies, especially the parasitoids, were evaluated based on a weekly sampling of 100 leaves taken on 10 trees (10 leaves/ tree). *A. spiraecola* colonized citrus trees since the beginning of flushing. The density per young leaf reached a maximum of  $78.8 \pm 23.4$  aphids in 2016 and  $44.4 \pm 13.0$  aphids in 2017 with an average density of  $6.0 \pm 1.5$  aphids/cm<sup>2</sup> and  $4.4 \pm 0.6$  aphids/cm<sup>2</sup>, respectively, where a significant difference between years ( $P < 0.05$ ) was observed. The parasitism rate expressed in terms of number of *A. spiraecola* mummies remained very low, varying between 1.6% in 2016 and 3.0% in 2017 with no significant difference ( $P > 0.05$ ) between years. Also, the emergence number of primary parasitoids was low for both years with 26.6% in 2016 and 10.8% in 2017. The primary parasitoids of *A. spiraecola* in 2016 were *Lysiphlebus testaceipes* and *Binodoxys angelicae* whereas only *L. testaceipes* was found in 2017. The total hyperparasitism rate varying between 16.7% in 2016 and 25.7% in 2017 did not differ significantly between years ( $P > 0.05$ ). Mummies without adult emergence rate were found to be very high varying between 85 and 100%. This partial parasitic failure observed on *A. spiraecola*

underlines many questions related with different factors (climate, ability of aphids to form winged populations to escape to their enemies, impact of hyperparasitoids). The new field of research is concerning the possible presence of endosymbiont organisms that could give to the aphid a defense reaction against its aggressors.[ Labdaoui, Z.E., and Guenaoui, Y.( Algeria), *Tunisian Journal of Plant Protection* 13 (si): 147-157,2018].

## EGYPT

**Biocontrol Activity of Volatile-Producing *Bacillus megaterium* and *Pseudomonas protegens* against *Aspergillus* and *Penicillium* spp. Predominant in Stored Rice Grains: study II.** In our previous studies, *Bacillus megaterium* KU143, *Microbacterium testaceum* KU313, and *Pseudomonas protegens* AS15 have been shown to be antagonistic to *Aspergillus flavus* in stored rice grains. In this study, the biocontrol activities of these strains were evaluated against *Aspergillus candidus*, *Aspergillus fumigatus*, *Penicillium fellutanum*, and *Penicillium islandicum*, which are predominant in stored rice grains. *In vitro* and *in vivo* antifungal activities of the bacterial strains were evaluated against the fungi on media and rice grains, respectively. The antifungal activities of the volatiles produced by the strains against fungal development and population were also tested using I-plates. In *in vitro* tests, the strains produced secondary metabolites capable of reducing conidial germination, germ-tube elongation, and mycelial growth of all the tested fungi. In *in vivo* tests, the strains significantly inhibited the fungal growth in rice grains. Additionally, in I-plate tests, strains KU143 and AS15 produced volatiles that significantly inhibited not only mycelial growth, sporulation, and conidial germination of the fungi on media but also fungal populations on rice grains. GC-MS analysis of the volatiles by strains KU143 and AS15 identified 12 and 17 compounds, respectively. Among these, the antifungal compound, 5-methyl-2-phenyl-1H-indole, was produced by strain KU143 and the antimicrobial compounds, 2-butyl 1-octanal, dimethyl disulfide, 2-isopropyl-5-methyl-1-heptanol, and 4-trifluoroacetoxylhexadecane, were produced by strain AS15. These results suggest that the tested strains producing extracellular metabolites and/or volatiles may have a broad spectrum of antifungal activities against the grain fungi. In particular, *B. megaterium* KU143 and *P. protegens* AS15 may be potential biocontrol agents against *Aspergillus* and *Penicillium* spp. during rice grain storage.[ Mohamed Manna (Egypt-Korea) and Kim, K.D., 2018. Biocontrol activity of volatile-producing *Bacillus megaterium* and *Pseudomonas protegens* against *Aspergillus* and *Penicillium* spp. predominant in stored rice grains: study, *Microbiology*, 46(1), pp.52-63II.2018].

**Parasitic and Phoretic Mites (Arachnida, Acari) Reported from Insects (Arthropoda: Insecta) in Egypt.** Mites exploit various symbiotic associations with insects and other arthropods, mainly parasitism and phoresy. Faunistic information of parasitic and phoretic mites on insects in Egypt is reviewed. Previous published records are gathered and, in some cases, altered. This paper presents an annotated list of the 120 species, including unidentified spp., of mites extracted from insects in Egypt to date. Mite species belong to 42 families [16 of Mesostigmata, 19 of Prostigmata, five of Astigmata and two in Cryptostigmata (Oribatida)]. Information about insect hosts, attachment sites and geographic distribution is provided.[ El-Kawas, H.M.G. & Negm, M.W.(Egypt), *Journal of Insect Biodiversity and Systematics* 4 (1): 57– 71,2018].

**Genetically Engineered (modified) Crops (*Bacillus thuringiensis* crops) and the World Controversy on their Safety.** *Bacillus thuringiensis* (*Bt*) crops are plants genetically engineered (modified) to contain the endospore (or crystal) toxins of the bacterium, *Bt* to be resistant to certain insect pests. In 1995, the Environmental Protection Agency (EPA) in USA approved the commercial production and distribution of the *Bt* crops: corn, cotton, potato, and tobacco. Currently, the most common *Bt* crops are corn and cotton. The crystal, referred to as Cry toxins, is proteins formed during sporulation of some *Bt* strains and aggregate to form crystals. Such Cry toxins are toxic to specific species of insects belongs to orders: Lepidoptera, Coleoptera, Hymenoptera, Diptera, and Nematode. In 2016, the total world area cultivated with genetically modified crops (GM crops) reached about 185 million ha. This review shows that there is a worldwide controversy about the safety of *Bt* crops to the environment and mammals. Some researchers support the cultivation of *Bt* crops depending upon the results of their laboratory and field studies on the safety of such crops. Others, however, are against *Bt* crops as they may cause risk to human.[Mohamed Samir Tawfik Abbas (Egypt), *Egyptian Journal of Biological Pest Control*, 28:52, 2018].

**Laboratory Evaluation of the Effect of Insecticides on Non-target Organisms: 2- The egg parasitoid, *Trichogramma evanescens* West. (Hymenoptera: Trichogrammatidae)**



The present study aimed to evaluate the effect of different groups of insecticides (e.g., Dipel, Dursban, Biover, Malathion and Spintor) on the immature stages and the parasitism rate of the egg parasitoid, *Trichogramma evanescens* west. (Hymenoptera: Trichogrammatidae) under laboratory conditions. The parasitized eggs of the factitious host, the Mediterranean flour moth, *Anagasta (Ephestia) kuehniella* Zeller were used. Data were recorded in terms of parasitism rate, emergence rate and female percentages. The calculated values of the Slope (b) of the log-dosage-probit mortality curve, by treating the parasitized *A. kuehniella* eggs (ranged from 0.6 to 1.34), indicated that the susceptibility of the population was heterogeneous for all the studied insecticides. Results indicated that each of the tested insecticides showed the different degree of toxicity. Malathion was the most toxic insecticide (Toxicity ratio T.R.: 10-39.7), while the bioinsecticide, Dipel was the least toxic one (Toxicity ratio T.R.:0.24-0.47). The parasitoid developmental stage had a significant effect on the toxicity ratio of all the studied insecticides. The eggs treated 7-day post-treatment showed the highest parasitism rate for all insecticides, (65-94%), followed by 5-day old (52-91%), 3-day old (48-90%), and then 1-day old (43-88%). An inverse relationship between the parasitism rate and the insecticide concentration was found. The emergence rate was affected greatly by both the type of insecticide and the treated immature stage. The highest emergence rate, (14-86%) was recorded for the eggs treated 1-day post-treatment, while parasitized eggs, treated after 7 days at all the tested insecticides recorded the lowest rates of adult emergence of *T. evanescens* (6-49%). The highest emergence rate (42-83%) was found for eggs treated with the fungicide Biover, while the lowest values (7-35%) were recorded for the eggs treated with Spintor compared to a significant high emergence rate for the untreated ones (92%). Sex ratio (female percentage) did not differ significantly between the treated (38-55%) and the untreated parasitized eggs (50-54%). [Mona A. Shoeb and A. H. El-Heneidy(Egypt), Egypt. Acad. J. Biolog. Sci. (A. Entomology) ,Vol. 11(3): 35- 44,2018].

**Efficacy of some Bioproducts and Plant Defense Elicitors against Root- knot Nematode, *Meloidogyne incognita* Infesting Dry Common Bean, *Phaseolus vulgaris*.** Under laboratory and field condirions, different bio-products and defense elicitors were applied for managing root-knot nematode, *Meloidogyne incognita* infesting common dry bean (*Phaseolus vulgaris*) cv. Giza 2. These materials were Al-green®, Root Most®, Soft Guard®, Chito-Care® and Nema-Foo® as liquid formulations being tested at two concentrations and Solid Sewage Sludge (Poudratte) at two rates. Results revealed that, all liquid bio-products at 10 and 20%, under laboratory conditions, reduced juvenile numbers. All materials, under field condirions, significantly ( $P \leq 0.05$ ) reduced root-knot nematode. The tested materials improved yield of dry seeds as follows: Al-green® at the highest concentration was superior in increasing weight of seeds followed by Soft Guard® at the lowest concentration. Some biochemical contents increased at the different treatments compared to those of the untreated check and the effect , in general, was higher by using the highest rate of some treatments than the lowest one and vice versa. [Wafaa Mohamed A. El-Nagdi, Mahmoud Mohamed Ahmed Youssef (National Research Centre) and Ahlam M. El-Ghonaimy (Desert Research Center) (Egypt), Scientia Agriculturae ,18(2): 38-44, 2017].

**Population Density of Root Knot Nematode, *Meloidogyne Incognita* Infecting Eggplant Influenced by Intercropping with Spear Mint plants** ;a pilot study In this experiment spear mint, *Mentha spicata* was used at 1,2,3 and 4 plants together with eggplant for controlling root knot nematode, *Meloidogyne incognita* under screenhouse conditions. Data showed that the different numbers of spear mint, *Mentha spicata* suppressed nematode criteria as indicated by the number of juveniles in soil and roots, number of galls and eggmasses on eggplant roots. On the basis of the percentage total nematode reduction, the highest number (4 plants) of spear mint recorded the highest percentage total nematode reduction(88.2%) followed by number of 3 plants as it achieved 79.3% nematode reduction followed by the other plant numbers (2 and 1plants) . On the other hand, the same trend was noticed regarding the percentage total plant growth and yield increase. However, when 4 spear mint plants were intercropped, a relatively less percentage total increase of eggplant growth and yield was observed [Mahmoud M. A. Youssef and Wafaa. M. A. El-Nagdi. Plant Pathology Department, Nematology Laboratory, National Research Centre, (Egypt). Bulletin of the National Research Centre 41(1):264-270.2017].

**Evaluation of the Activity of Thyme Essential Oil Nanoemulsion against Sclerotinia Rot of Fennel.** In this work, the effect of ultrasonication time on the particle size of thyme essential oil nanoemulsion was determined. The results showed that the particle size resulting from sonication for 15 minutes was around 207.2 nm, and TEM study revealed the spherical shape. The particle size in preparation subjected to sonication for 60 min was decreased to 34.6 nm and they were spherical and shapeless. The in vitro experiments revealed that the nanoemulsion at different concentrions (0.25 – 3.0%) were capable of adversely affecting the mycelial growth of *Sclerotinia sclerotiorum*. The nanoemulsion (particle size 34.6 nm) completely prevented fungal growth at the lowest

concentration. On the other hand, fungal growth was prevented by the 1% concentration of the nanoemulsion of particle size 207.2 nm. Treating fennel seeds with oil emulsion did not affect germinability, while nanoemulsion (34.6 nm) prevented seed germination when used at 1.0 concentration and the nanoemulsion of 207.2 nm particle size was less inhibitive though a sharp decrease at 1.0% concentration occurred. Percentages of damping off were significantly reduced and plant growth was improved as well as the activities of peroxidase and polyphenol oxidase were increased as a result of treatment with nanoemulsion. [Hassanin, M. M. H.; A. E. A. Halawa and A. A. ALI (Egypt), Egypt. J. Agric. Res., 95(3), 2017].

**Two Trichoderma Species and *Bacillus Subtilis* as Biocontrol Agents against Rhizoctonia Disease and Their Influence on Potato Productivity.** Stem canker and black scurf caused by *Rhizoctonia solani* is a problem facing potato production. In this work, under greenhouse conditions, three compatible bioagents i.e., *Trichoderma koningii* and *T. harzianum* (in mixture) and *Bacillus subtilis* ATCC®11774™ were evaluated individually and in combinations for disease suppression and further effect on plant growth of potato plants. Radial growth of *R. solani* was inhibited by the two *Trichoderma* strains and *B. subtilis* in dual Petri plate assay. In two experiments, significant plant protection was achieved when either *B. subtilis* added to tubers or *Trichoderma* mixture added to the soil. However, soil application with *Trichoderma* either singly or in combination with tuber bacterization demonstrated the greatest suppression of cankers on potato plants. With respect to plant growth promotion, the greatest proportional increases in plant height were elicited by tuber bacterization combined with soil application of *Trichoderma* mixture. Dual tuber treatments by *Trichoderma* mixture with soil applications of bacteria led to the highest increase of plant stolons and leaf numbers in both experiments. Both combined applications and sole soil application by *T. mixture* recorded the same significant effect in increasing shoot fresh and dry weights of potato plants as well as improved tuber yield and some biochemical parameters (chlorophyll content, total phenol, peroxidase and polyphenoloxidase contents) significantly. This research suggests incorporation of such bioagents to suppress *Rhizoctonia* diseases and increase the productivity of potato. Key words: *Trichoderma harzianum*, *Bacillus subtilis*, Bacterization with antagonist, potato yield, chlorophyll content, total phenols, peroxidase and polyphenoloxidase. [Ali, Abeer A. ; A. E. S. Abd El-Kader and Kh. M. Ghoneem, (Egypt), Egypt. J. Agric. Res., 95 (2), 2017]

**Biogenic Silica Nanoparticles, Synthesis, Characterization and Antifungal Activity against Two Rice Pathogenic Fungi.** Silica nanoparticles (Si NPs) were extracted by different methods from rice husk (RH) and rice straw (RS), and characterized by X-ray diffraction (XRD), scanning electron microscopy (SEM) and transmission electron microscopy (TEM). For the XRD results, the crystalline size was calculated using Scherrer equation. The particle size of rice husk nanoparticles (RHNPs) and rice straw nanoparticles (RSNPs) were 73.6 nm and 133.7 nm, respectively. Silica present in RHNPs and RSNPs was about 22.78 and 9.56%, respectively. Si NPs were effective in controlling rice blast (*Pyricularia grisea*) and brown spot (*Bipolaris oryzae*) fungal diseases under greenhouse conditions during 2015 season. Efficiency of soil application with RHNPs and white rice husk ash WRHA 92.56 & 90.90% at the rate of 1.5 g/kg, were the most effective treatments to reduce blast disease severity compared to other treatments as well as control. On the other hand, rice plants were treated with liquid potassium silicate (K<sub>2</sub>SiO<sub>2</sub>), WRHA and RHNPs gave 96.92, 93.07 and 91.53 % efficiency, respectively as foliar application for the control of brown spot disease compared with other treatments. SEM/energy-dispersive spectrometer (EDX) observations and X-ray spectra of adaxial surfaces of the fourth rice leaves Sakha 101 rice cultivar) in soil applied with 1.5g/kg gave different types of silicified cells. The corresponding EDX spectra compared with the SEM images demonstrated differences in silicon content between soil treated by RHNPs 13.75% and nontreated plants 10.6%. Silicon accumulation in Sakha 101 rice leaves treated with RHNPs as soil application at 1.5g/kg was increasing Si layers in epidermal cell walls, cuticle and the thickness of the silicon layer. Also, outer regions of epidermal cell walls and intercellular spaces within sub-epidermal tissues. All the silicon layers may be playing a role in increasing the resistance of rice plants and controlling the rice diseases. [Kalboush, Zeinab A., W. E. Gabr and A. A. Hassan, Egypt. J. Agric. Res., 95 (2), 2017].

**Toxicity of the Photoactive Compounds Phloxine B and Menadione on *Bactrocera zonata* (Diptera: Tephritidae).** The photoactive compounds phloxine B and menadione are relatively safe food additives and possess efficient insecticidal properties against certain insect species. The two compounds were tested for toxicity to the peach fruit fly, *Bactrocera Zonata* (Saunders) under both dark and sun light conditions. Both compounds had no significant toxic effect in dark and concentration-dependent toxicity when insect exposed to sunlight for 2 hrs. Phloxine B was approximately 1000 times more toxic to *B. zonata* than menadione with LC<sub>25</sub> in water of 0.0007 g% and 0.854 g% (w/v), respectively. Adding menadione to phloxine resulted in significant antagonistic effects on insect

mortality, which could be due to menadione alteration of the pH of the feeding media and/or menadione induction of the ROS-detoxifying enzymes, particularly peroxidase. It is concluded that phloxine B and menadione are incompatible and their mixture is not likely to pose any significant addition to their control potential against *B. zonata*. [Abd El Rahman, M. M.; A.M. Azazy and A.A. El-Hefny(Egypt), Egypt. J. Agric. Res., 95 (3), 2017].

## IRAQ

**Evaluation the Efficiency of Natural Nutrient Products and Industrial Flavors on the Activity of Honey Bee Colonies *Apis mellifera* L. in Balad Region.** The results showed that the test of five types of flavor (Lemon, orange, banana, Caramontue and Vanilla) at attraction of honey bee workers *Apis mellifera* L. orange and banana Flavor exceed by the number of honey bee workers which reach (33.0,24.74, Worker\day) respectively .These type of flavors which was mix with natural nutritional products (Reishi Mashrom and Gordebien) to study the efficiency in activity of honey bee colonies..The results showed exceed of first mix (reishi+orang flavor+sugar syrup)which is give high efficievey on the nutrient affect of honey bee colony that treated this increase of (honey area, closed brood,open brood and pollen),which is reach (675,602,265.67 and 318) inch<sup>2</sup> Respectively in the winter season in comparison with .((control treatment (sugar syrupouly)). There are avaried differences between treatments on increase the activity of honeybee community according to type of naturai product and industrial flavours .which come fourth mix in second rank. Honey area, Closed Brood,Open Brood,pollen and increased with this treatmet by(299.77,199.67 and 456.67)inch<sup>2</sup> While six mix treatment wich give(152,and 254) inch<sup>2</sup> . [ Mohammed Shaker mansoor (Iraq), Journal of Tikrit University for Agriculture Sciences (JTUAS) , Vo1. (18) No. (Special) 2018. The 7<sup>th</sup> Scientific and 1th International Conference of Agricultural Research, 10-11 April 2018].

**Evaluation of Herbicidal Potential of Commercial Herbicides in Wheat (*Triticum aestivum* L.) Cultivation.** A field experiment was conducted in Kanan region, province of Diyala, Iraq during the winter season 2016-2017 to screen herbicides for wheat cultivation. Six herbicides viz., Salix, Cronus, Pallas, Granstar, Topic and Atlantis were sprayed as post-emergence with second irrigation 54 d after crop sowing. Wheat growth parameters viz crop height, spike length and number of grains per spike were a higher in Granstar and Topic (105.2 cm, 12.6 cm, 51.4) respectively, 1000 grain weight were noted with Atlantis (40.9 g) followed by Granstar and Topic (39.2 g), Number of plants/m<sup>2</sup> was a higher in Atlantis (430), Grain yield g \ acre was significantly increased in Granstar and Topic (1848 g). weeds growth parameters like Number of weeds/m<sup>2</sup>, Dry weight of weeds g, weed control % and weeds inhibition % were lower in Salix and cronos (0.0, 0.0 g, 100%, 100%) respectively.[ Hussein Ali Salim, Abdalsalam Awni Abdalbaki, Hussein Ali Khalid, Abd Alrasool Shalal Taha, Salam Farhan Dawood (Iraq), Iraq Recent Research in Science and Technology, 9: 10-12, 2017. doi: 10.25081/rrst.2017.9.3356 <http://updatepublishing.com/journal/index.php/rrst/>

## LEBANON

***Leptoglossus occidentalis* (Heidemann, 1910), an Invasive Species Attacking Conifers in Lebanon: Assessment of Damage and Preliminary Laboratory Control by the Entomopathogen *Beauveria bassiana*.** The western conifer seed bug, *Leptoglossus occidentalis* (Heidemann, 1910), is an alien invasive species originating in North America and attacking conifers in Lebanon. The first record of the pest in Lebanon was in 2015. It got established in different pine forest regions from North to South of Lebanon and was associated with dry cone syndromes. The objectives of the study were to assess the damage on pine nuts associated with the western conifer seed bug and to evaluate the efficacy of a biological control agent, *Beauveria bassiana*, on the immature stages of *L. occidentalis* under laboratory conditions. Assessment were conducted in 12 different villages to estimate the real impact of *L. occidentalis* on the cones. Empty kernels were examined for insect damage and results indicated that more than 90% of the empty kernels were associated with feeding damage caused by *L. occidentalis*. Chemical control of this pest is problematic because of the ecology of the insect and the restriction of chemical pesticides uses in forest ecosystems. The entomopathogenic fungus *Beauveria bassiana*, a potential biological control against immature stages of *L. occidentalis* was evaluated under laboratory conditions. Two concentrations of conidial suspension were applied topically on eggs and first nymphal instars: 50 conidia/immature and 500 conidia/immature. The hatching of eggs treated with conidial suspension was 40% lower compared to 100% in the control. *B. bassiana* caused 100% mortality of first instar and sporulation of the insects' cadavers occurred after 3 weeks. The present

study shows that *B. bassiana* is a potential biocontrol agent to reduce the population of the alien insect.[ **El Khoury, Yara, Njeim, Elise, Tarasco, Eustachio, Nemer, Nabil(Lebanon), XI European Congress of Entomology, Naples, Italy, 2-6 July, 2018**].

**Survey of Nematodes Associated with Pinewood in Southern Italy and Lebanon.** The pinewood nematode, *Bursaphelenchus xylophilus*, is the causal agent of the devastating “pine wilt disease” (PWD). It is a quarantine pest originating from North America, and a major invasive pine pest in Eurasia. In Italy and Lebanon, it has never been detected so far, even if its vector *Monochamus* sp. is present in both countries. To identify the nematofauna associated with the main pine species, surveys in Lebanon (Horsh Beirut and Maten Region) and Southern Italy (Ionic coast and Salenton subregion) have been conducted. Wood samples were taken from pine trees showing declining symptoms; in addition, an evaluation has been carried on the presence of PWN and other nematode species associated with bark and wood boring insects. Nematodes have been extracted from pinewood, and morphological and molecular identification will be performed to identify the species. Considering the wide distribution of *Monochamus* spp., conifers and climate conditions, Italy and Lebanon show favorable conditions for the development, establishment and spread of PWN. This reinforces the importance of the monitoring system set up which has to contribute to the early detection of the nematode or latent infections. [**Yara El Khoury, Elise Noujeim, Francesca De Luca, Alberto Troccoli, Elena Fanelli, Nabil Nemer, Eustachio Tarasco(Lebanon), XI European Congress Of Entomology, Naples, Italy, 2-6 July, 2018**].

## LIBYA

**Some observation on Pit Green Scale *Palmaspis phoenicis* infestation in Libyan Oases.** Libya comprises a



unique agricultural desert ecosystem led to production of successful economical date palm tree varieties. A number of insect pest and diseases affect date palm trees causing significant economical losses. The pit green scale (PGS) *Palmaspis phoenicis* is considered one of the main insect pests that infest date palm trees. By the end of 2015 the PGS was found in Oases of Houn, Sokna, Waddan and Zalla. The insect invasion wasn't recorded officially in Libya, but it was noticed by farmers in 2008 at Al Jufra region, and spread widely during 2013 - 2015. The green scale became a serious pest of date palm trees in the center and south regions of Libya. A workshop was organized by the University of Al Joufra in May 2017 and recognized that PGS is a damaging pest to date palm trees production in Al Jofra and the surrounding areas. It was recommended strongly that the local authorities and the UN organizations should act immediately to combat this pest through IPM programs and prevent its spread. The GPS infest verities of date palm trees in Al Jofra mainly Khadry, Saidy, Homray, Taghiat, Apel, Oligh, Mogmag, Tameg, Halima and Deglet nor. At Wadi Eteba, southern region, more than 16000 date palm trees were infested by GPS. The farmers used Cyperkil,

Tornado and Dimethoate insecticides, mineral oils, detergents and sulfur. Agricultural practices were mainly pruning, burning and removal of susceptible palm trees such as Khadry and Saidy. Natural enemies of GPS were surveyed since 2017. Three insect predators genera were found: *Coccinella*, *Cypocephalus* beetles and *Chrysopa* larvae.[ **Khdija Suliman Mohamed Ali (Libya), Zoology Department, Biology, Faculty of Science, Al-Jufra University, Libya, 2018**].

## SUDAN

**Effect of the introduction time of *trichoderma harzianum* into soil on its biocontrol potential against *meloidogyne javanica* on tomato plants under greenhouse conditions.** The effect of the introduction time



of *Trichoderma harzianum* into soil on its biocontrol potential against *Meloidogyne javanica* on tomato plants was evaluated in a greenhouse pot experiment. Seven introduction times (inoculations) of *T. harzianum* were tested. The fungus was added simultaneously and 5, 10 and 15 days, either before or after the infestation of tomato soil with *M. javanica* eggs. Plants inoculated with *M. javanica* alone, *T. harzianum* alone and non-treated plants served as controls. Results showed that all *T. harzianum* applications suppressed ( $P \leq 0.05$ ) *M. javanica* reproduction and the root damage of the tested tomato plants, while generally increased the tomato growth parameters. The time of the fungus application into soil was found to be very critical. The early applications of the fungus (5, 10 and 15 days before soil infestation with *M. javanica*) were the most effective. [Omeed A.M. Abdelrafaa<sup>1</sup>, Ekhlas H.M Ahmed<sup>1</sup>, Nayla E. Haroun<sup>2</sup>, Ahmed A.M. Dawabah<sup>3</sup>, Fahad A. Al-Yahya<sup>4</sup> and Hamzeh A. Lafi<sup>4</sup>. <sup>1</sup>Department of Plant Protection, College of Agricultural Studies, Sudan University of Science and Technology, <sup>2</sup>Department of Biology, University of Hafr Albatin, Saudi Arabia, <sup>3</sup>Department of Nematode Diseases Research, Plant Pathology Research Institute, Agricultural Research Center, 9 Gamaet El-Qahera street, Giza 12619, Egypt, <sup>4</sup>Department of Plant Protection, College of Food and Agricultural Sciences, King Saud University, P. O. Box 2460, Riyadh 11451, Saudi Arabia. International Journal of Current Microbiology and Applied Sciences (2018) 7(5): 1836-1843].

## TUNISIA

**Impact of Nitrogen Fertilization on Fusarium Foot and Root Rot and Yield of Durum Wheat.** This study investigated the influence of nitrogen fertilization on Fusarium foot and root rot. Disease index, percentage of white heads, grain yield, weight of 1000 grains and nitrogen content were evaluated in durum wheat after artificial inoculation with *Fusarium culmorum* under field conditions. The trial was conducted using Karim wheat cultivar during growing season 2016/17. Five nitrogen rates, 0, 50, 100, 150 and 200 kg N/ha were evaluated. Nitrogen supply at higher rates (150 and 200 kg/ha) significantly increased disease index, the percentage of white heads, the grain yield, the weight of 1000 grains and nitrogen content. These results suggest that high amounts of nitrogen fertilization may increase infection of wheat by Fusarium foot and root rot disease by influencing the plant physiology. [Hemissi, I., Gargouri, S., Hlel, D., Hachana, A., Abdi, N., and Sifi, B.(Tunisia), Tunisian Journal of Plant Protection 13 (si): 31-38.2018].

**Identification and Occurrence of *Trichoderma harzianum* Associated with Cork Oak in Tunisia.** *Trichoderma harzianum* is an endophyte fungus of considerable interest because of its effectiveness as a biocontrol agent against various plant pathogenic fungi. In this study, *T. harzianum* was isolated from cork oak trees in three forests in northwest Tunisia. Initially, the fungal characterization was carried out based on macroscopic and microscopic features. Sequencing of the internal transcribed spacers 1 and 2 of the DNAr was carried out to confirm fungus identification at the species level. The aims of this work were to study the occurrence of *T. harzianum*, to understand its relationship with the host plant, and to quantitatively investigate its distribution on the different organs of cork oak trees across three sites (Babouch, Ain snoussi, Ain zana). *T. harzianum* frequency varied significantly ( $P < 0.001$ ) among the surveyed forests. The fungus was more common at Babouch forest and was rarely encountered at Ain zana. Correlation analysis was used to determine the relationship between the dendrometric parameters, the phytosanitary status of the investigated trees and the abundance of *T. harzianum*. The results showed a significant and positive correlation between the fungus frequency and the tree height. A negative and significant correlation was noted between the trees' chlorosis index and fungus abundance. These findings may afford a contribution to the knowledge of *T. harzianum* in Tunisian forests and its relationship with cork oak trees which could help to develop control strategies using *Trichoderma* strains.[ Yangui, I., Zouaoui Boutiti, M., Hlaiem, S., Vettraino, A.M., Vannini, A., Ben Jamaâ, M.L., and Messaoud, C. (Tunisia), Tunisian Journal of Plant Protection 13 (si): 39-48,2018].

**Identification and Pathogenicity of *Pestalotiopsis chamaeropsis*, Causal Agent of White Heather (*Erica arborea*) Dieback, and in vitro Biocontrol with the Antagonist *Trichoderma* sp.** Plant pathogenic fungi are one of the main causes of forest trees diseases. The symptoms of dieback include a foliage yellowing and fall, a drying and necrosis at branches, cankers, deformations, a blackish fluid and flow of rots at the level of the trunks. Symptoms of wilting were observed on one species of scrub: white heather (*Erica arborea*), located in the forest of "Henchir Kort" northeast of Tunisia. Isolations from the margins of these cankers revealed the fungal genus of

Pestalotiopsis. Morphological and molecular analysis of the ITS allow to identify the pathogen as *Pestalotiopsis chamaeropsis*. The Koch's rules have been verified. The antagonistic effect between *P. chamaeropsis* and *Trichoderma* sp. was assessed in vitro. Tests of direct or remote confrontation on PDA medium revealed that *Trichoderma* sp. inhibited mycelial growth of the pathogen compared to the untreated control. [Hlaïem, S., Zouaoui-Boutiti, M., Ben Jemâa, M.L., Della Rocca, G., Barberini, S., and Danti, R. (Tunisia), *Tunisian Journal of Plant Protection* 13 (si): 49-60, 2018].

**Impact of Captopril on *Ephestia kuehniella*: Ovarian Nucleic Acid amounts and Protein Analysis.** *Ephestia kuehniella* is a serious stored product pest, especially in whole and milled grains. Knowing the mechanisms that control the reproduction and development of these pests is therefore of fundamental and economic interest. Captopril, an inhibitor of angiotensin converting enzyme, was tested in vivo by topical application on reproduction of *E. kuehniella*. The drug was dissolved in acetone and topically applied (10 µg/pupa) on newly molted pupae. In follow-up experiment, the adults that survived from treated pupae were investigated for different reproductive event parameters. Captopril significantly reduced the ovarian contents of proteins and nucleic acids. The electrophoretic separation of proteins on sodium dodecyl sulfate polyacrylamide slab gels showed differences in the number of protein fractions between control and treated series. We noted the absence of three protein fractions in treated series. [Yezli-Touiker, S., Taffar, A., Meskache, R., and Soltani, N. (Tunisia), *Tunisian Journal of Plant Protection* 13 (si): 77-85, 2018]

**Effects of latex from *Pergularia tomentosa* and the Aggregation Pheromone, Phenylacetoneitrile, on *Locusta migratoria* larvae.** Despite being a serious risk to human health and environment, chemical insecticides remain the most used for locust control. Searching for alternative control methods, effective and compatible with the environment, has become of increasing interest. Plant latex is an endogenous fluid secreted from highly specialized laticifer cells and has been suggested to act as a plant defense system. The aim of the present investigation was to study the insecticidal potentialities of *Pergularia tomentosa* latex at different concentrations, alone or in combination with the phenylacetoneitrile (PAN), on the 4<sup>th</sup> instar larvae of *Locusta migratoria*. The obtained results showed that the latex revealed an interesting insecticidal activity against *L. migratoria* larvae, resulting in a mortality reaching 96.49 %, 6 days after treatment. Toxicity bioassays revealed that PAN, associated with the latex, is able to accelerate and to increase the mortality rate. Pheromone-based treatment affected the health of treated insects by significantly reducing their respiratory rhythms. PAN was shown able to alter, quantitatively and qualitatively, the larval blood cells as expressed by the significant decrease in the number of the differential haemocyte counts (prohemocyte, plasmatocytes and granulocytes) and the important cell lysis. [Miladi, M., Abdellaoui, K., Regaieg, H., Omri, G., Acheuk, F., Ben Halima-Kamel, M. (Tunisia), *Tunisian Journal of Plant Protection* 13 (si): 87-98, 2018].

**Field Assessment of the Mass Trapping Technique for the Control of the Chickpea Leaf miner *Liriomyza cicerina*.** This work evaluated the chickpea leaf miner *Liriomyza cicerina* mass trapping technique as an alternative to insecticide spraying. A trap density of 2000 per ha was used. Trials were conducted in Beja during 2015 and 2016 using Nour variety. Leaves were sampled weekly from all treated and control plots and observed under binocular microscope. Regarding the reduction in infestation at harvest, results showed reductions of 20.11 and 18.13% respectively for chemical and mass trapping treatments compared to control. Efficacy also was assessed on the basis of captures and infestations reductions compared to control, the yield and 100-seeds weight. Results showed significant difference (at  $P < 0.05$ ) between treatments, with 0.21 kg/m<sup>2</sup> grain yield for the control and 0.8 kg/m<sup>2</sup> for the chemical treatment and the mass trapping. Also, regarding the 100-seeds weight, it was 21.5g for the control and respectively 38.2 and 41.7 g with the chemical treatment and the mass trapping. [Soltani, A., Amri, M., and Mediouni-Ben Jemâa, J. (Tunisia), *Tunisian Journal of Plant Protection* 13 (si): 107-112, 2018]

**Rapid Ability Adaptation of *Callosobruchus maculatus* to a Novel Host *Vigna unguiculata*.** In Tunisia, the cowpea seed beetle *Callosobruchus maculatus* is the major and economic insect pest of stored chickpea. This work aims to study the adaptive behavior of Tunisian strain of *C. maculatus* exclusively reared on chickpea for 5 years on a novel host, the cowpea *Vigna unguiculata*. The relative aspects of the host adaptation tests consist of the assessment of the reproductive parameters and the demographic traits of the insect over six months of storage period on chickpea and cowpea seeds. Two types of bioassays free-choice and no-choice were performed. Comparison of reproductive and demographic parameters for *C. maculatus* showed that under no-choice situation, chickpea was the preferred host of *C. maculatus* along the first two months of storage. However, under free-choice, the results revealed that from the first month of storage, the reproductive and demographic parameters of *C. maculatus* shifted in favor

of cowpea. Thus, through this work, we have demonstrated the rapid adaptive potential of *C. maculatus* toward its original host and its ability to recognize and adapt to it over a short period. [Haouel-Hamdi, S., Labidi, M., Hedjal-Chebheb, M., Aouji, A., Boushih, E., and Mediouni-Ben Jemâa, J. (Tunisia), *Tunisian Journal of Plant Protection* 13 (si): 113-121, 2018]

**Combined Use of *Eucalyptus salmonophloia* Essential Oils and the Parasitoid *Dinarmus basalis* for the Control of the Cowpea Seed Beetle *Callosobruchus maculatus*.** This work aims to evaluate the possible combined use of *Eucalyptus salmonophloia* essential oils and the ectoparasitoid *Dinarmus basalis* for the control of the cowpea seed beetle *Callosobruchus maculatus*, a serious pest of economic importance on stored legumes including chickpea. This study carried out first investigation on the insecticidal potential of *E. salmonophloia* grown in Gabès (South Tunisia). Fumigant toxicity of the essential oils was tested against pest adults and larvae (L1, L2 and L3 larval stages). The parasitoid was introduced respectively 3 and 6 days after oil application against the fourth instar larvae and nymphs of the target pest. Results reported the interesting insecticidal potential of *E. salmonophloia* essential oils against *C. maculatus* L1, L2 and L3 larvae and adults. Oils significantly inhibited the parasitism potential of *D. basalis*. Indeed, at the concentration 12.5 µl/l air, the emergence rate of *D. basalis* adults decreased from 93.33% for the control to 40 and 28.33%, respectively, at 3 and 6 days following oil application. Storage of seeds using plant-based insecticides and essential oils is not always compatible with biological control strategies. Thus, identifying components that have lower effects on natural enemies is very important for a successful IPM program. [Haouel-Hamdi, S., Abdelkader, N., Hedjal-Chebheb, M., Saadaoui, E., Boushih, E., and Mediouni-Ben Jemâa, J.(Tunisia), *Tunisian Journal of Plant Protection* 13 (si): 123-137. 2018].

**Ophiostomatoid fungi Associated with the Ambrosia Beetle *Platypus cylindrus* in Cork Oak forests in Tunisia.** Cork oak (*Quercus suber*) is a unique species of the Western Mediterranean region and over the last decades it has been threatened by several pests and diseases. Amongst the main dangerous pests, the ambrosia beetle *Platypus cylindrus* (the oak pinhole borer) has a key role on the process of cork oak decline namely in Portugal, Morocco, and Algeria. However, in Tunisia, where cork oak forests cover around 90.000 ha of the territory, this insect continues to have a secondary pest status. As all ambrosia insects, *P. cylindrus* is able to establish symbiotic relationships with fungi and it is known as the vector of ophiostomatoid fungi, a group including primary tree pathogens. The aim of this study was to identify these beetle-associated fungi in Tunisian forests and to understand the contribution of this association in cork oak decline by comparing with the results from other countries. The present study was conducted in 2012 in ten cork oak forests in the western-north of Tunisia and focused on ophiostomatoid fungi associated with the cork oak pinhole borer. Twenty four isolates were grouped based on morphological identification, and five representative isolates were included in phylogenetic analyses based on sequence data of ITS and  $\beta$ -tubulin loci. The fungi were assigned to five species namely *Raffaelea montetyi*, *R. canadensis*, *Ophiostoma* sp., *O. tsotsi* and *O. quercus*, some of them were already reported in Portugal and Algeria to be associated with cork oak decline. All these species were identified and reported for the first time in Tunisia to be associated with *P. cylindrus* in cork oak trees and their role in the cork oak loss of vitality needs to be investigated.[ Bellahirech, A., Inácio, M.L., Ben Jamâa, M.L., and Nóbrega, F.(Tunisia), *Tunisian Journal of Plant Protection* 13 (si): 61-75, 2018].

**Evaluation of the Resistance of Different Barley Accessions to the Russian Wheat Aphid *Diuraphis noxia*.** This study aimed to assess the natural resistance of 72 barley accessions to the Russian wheat aphid *Diuraphis noxia*. Three parameters were used to evaluate the response of barley accessions (chlorosis, yield and morphological characteristics). A limited chlorosis rate was recorded for the accession 23 (11 to 20% which was associated with important spike weight (3.02 g) and 1000-grain weights (53.84 g)). In spite of its chlorosis rate situated between 31 and 50%, the accession 68 presented a dry weight (6.49 g) and a number of tillers (3) the most important compared to the rest of accessions. In resistant accessions, the high number of hairs on their leaves has probably limited the action of this aphid on yield, especially the weights of the ears and the 1000 grains. The local accession Saida was the most susceptible to the Russian wheat aphid. [Laamari, M., and Benyahia, L. (Tunisia), *Tunisian Journal of Plant Protection* 13 (si): 99-106, 2018].

## ❖ Graduate Students Activities (Master and Doctorate Thesis)

**Efficacy of Native Isolates of Entomopathogenes against Potato Tuber Moth.** The research accomplished for this thesis was done for 3 years between 2014 and 2017 at the Faculty of Agriculture, Al-Baath University, in order to evaluate the efficiency of three Local isolates of the entomopathogenic fungus *Beauveria bassiana* (Bals.) Vuill. against potato tuber moth [*Phthorimaea operculella* (Zeller)]. Different tests were done in vitro, in semi-field, in field and in store. Isolates B, C and D were taken from Latakia, Aleppo and Damascus respectively. From susceptibility tests it was found that all stages of potato tuber moth were susceptible for all three studied isolates and the first instar larvae were the most susceptible. From susceptibility tests, It was found also the isolate B is the Most virulent and the isolate C realized the top sporulation rate on their dead host. In this found, *B. bassiana* showed endophytic activity within potato plant in both inoculation methods. The endophyte realized a colonization ratio of 50% in tuber inoculation method and 100% in leaves inoculation method. There were no obvious negative effects of the treatment by the endophytic isolate on the plant growth, neither for the length, nor for the dry weight. It was tested the effect of inoculated potato plants by  $0.75 \times 10^7$  spore / ml of the spore suspension of the isolate (B) of *B. bassiana* according to previous methods (tubers inoculation and leaf inoculation), on nutrition of the first and the fourth instars larvae of potato tuber moth (*P. operculella*). A decrease in the averages of the consumed surface of leaves was observed in a leaf inoculation method compared with averages of consumption in tubers inoculation method. The results showed that fungus has affected clearly of both instars larvae, through the reduction of survival rates, or the appearance of malformed adults. The three Syrian isolates of the fungus *B. bassiana* (Balsamo) Vuill., showed efficiency with concentration of  $1 \times 10^8$  spore/ml in spring season in Homs governorate (Syria). In leaves inoculation method, infection rate reduction for the new formed tubers ranged from 46.4% to 51.2%, while it is ranged from 10.12 to 12.25% in tubers inoculation method. The results showed efficiency for the three isolates with concentration of  $1 \times 10^7$  spore/ml to control of potato tuber moth under non-refrigerated storage conditions, after artificial infection with adults. The infection rates of storage tubers were reduced to 67, 83.3, 87.9, and 100% for isolates C, D, B and control respectively as well as rates of the severity of infection were reduced to 50.7, 63.2, 70.8, and 99.2 % for the same isolates respectively. The isolate C was relatively superior to the rest of the isolates in the field and the store. The results indicated the importance of native studied isolates to control of potato tuber moth, so they can be considered as an important bio-agent in the integrated management of the pest in field and store. [Nisreen Alsoud ,(Syria), Plant Protection Department, Al-Baath University, Faculty of Agriculture, Syria (PhD, 2018)].

**Molecular Identification of *Fusarium oxysporum* f. sp. *lycopersici* Isolates and their Suppression Mechanism to Growth, Reproduction and Genome Content by Using Debris of Tomato Plants.** A series of experiments were conducted under field, greenhouse and laboratory conditions during Spring and Autumn seasons, 2013, to identify the causal agents of vascular wilt disease on tomato, in particular, *Fusarium oxysporum* f. sp. *lycopersici* isolates, based on their morphological and molecular characteristics with evaluate their pathogenicity, and suppression mechanism of composted tomato debris to the growth , reproduction and genetic contents of these isolates. The Percentage of wilt disease on tomato fields in Babylon, Karbala and Najaf provinces was determined. Ten isolates of *Fusarium* were reported, four of them in Babylon (F6, F9, F13 and F17), two in Karbala (F2 and F8) and Four in Najaf Province (F1, F4, F20 and F22). Seven isolates of *F. oxysporum* f. sp. *lycopersici* (F1, F2, F4, F6, F8, F9 and F17), two isolate of *F. solani* (F20 and F22) and one isolate belongs to *F. nelsonii*. These isolates were identified according to microscopy, morphology characteristics and their response toward differential varieties of tomato. These isolates differed in their pathogenicity and growth rates on PDA. F6 and F17 isolates were similar in physiological characteristics race 1 while the characteristics of F2, F4, F8 are analogous to the race 3. Molecular identification, revealed that the F1, F2, F4, F6, F8, F9 and F17 isolates are belong to *F. oxysporum*. F6 and F17 isolates belong to race 1, while F2, F8 (Karbala), F4 (Najaf) are more related to race 3, this finding confirms that race 3 is a first record in Iraq. Molecular analysis shown that F2, F4, F6, F8 and F17 isolates categorized with in *F. oxysporum* f. sp. *lycopersici*. Both F1 and F9 are related to *F. oxysporum* but to another form, whereas the classification of other isolates are similar to that confirmed by traditional technique. The organic extracts of non-decomposing debris (1% conc.) had significant inhibitory effect on seed percentage germination, seedlings lengths and dry weight of tomato plants. But this effect was opposite to that caused by the decaying debris which stimulated the above parameters. The results showed that the organic extracts had substantial influence on sporulation and germination of F4, F8 and F17 propagules, since the sporulation of microconidia, macroconidia and their percentage



germination were increased significantly ( $p \leq 0.05$ ) when grown in PDA supplemented with non-decomposing debris (1% conc.) compared with inhibitory effect of composting debris. Also, organic extract of non-composted debris stimulated the growth of F4, F8 and F17 isolates, enhanced protoplasm of cell and increased the pathogenicity of the three isolates, compared with inhibitory effect to all above parameters caused by composted debris. The antagonistic capability of *Trichoderma harzianum* against the three isolates (F4, F8 and F17) was increased in both laboratory and greenhouse conditions by using composted debris which enhanced the bio-agent fungus to produce fungal structures towards the colony of F17 isolate. On other hand, fungal genomes of F4, F8 and F17 isolates were markedly affected by organic extracts, in particular, on concentration and DNA content. This effect could be reflected on protein composition and enzymatic production and in consequences on the pathogenicity of these isolates. Moreover, phenolic concentration was higher in composted debris. These results demonstrated the suppression mechanism of organic extract against the growth and reproduction of *Fusarium oxysporum lycopersici* isolates (F4, F8 and F17) which give rise to the potential role of tomato debris to produce healthy plants. [Ali F. Merjan , Iraq, Al-Qasim Green University, Supervisor Jawad K. Al-Janaby, Babylon University, (PhD, 2018)].

**Evaluation of some Chickpea Germplasms against *Chickpea chlorotic stunt* and *Beet western yellows* viruses and Identification of Resistance Components**. Chickpea (*Cicer arietinum* L.) is the second most important cool season pulse crop in the world. Previous studies revealed that the persistently aphid-transmitted luteoviruses *Beet western yellows virus* (BWYV) and *Chickpea chlorotic stunt virus* (CpCSV), which have a wide legume and non-legume host range and can cause mild to severe crop loss, were the main viruses affecting chickpea in the West Asia and North Africa (WANA) region. Experience gathered over the last few decades clearly showed that no single method of virus disease control suffices to reduce yield losses in the crops. The majority of procedures applied to control virus diseases affecting chickpea were depending on the control of insect vectors using chemical insecticides and applying of agricultural practices (such as planting date, plant density, ground cover,....etc.). Recently, it is clear that the use of resistant varieties is the best eco-friendly and long term solution to control plant viruses, but unfortunately resistant varieties are currently not available. Moreover, there is no information about mechanism of resistance. The main purpose of this study is to evaluate large collections of chickpea genotypes (from ICARDA) for resistance to BWYV and/or CpCSV, identification of the mechanism of resistance, and conducting compensation of both cultural (variety, sowing date, row spacing, seed rate, intercropping...) and seed coating practices to develop an active new strategy for management of these viruses. If resistant materials can be characterized, this would open up new possibilities of controlling BWYV & CpCSV. Moreover, the characterization of the mechanism of virus-resistance and the virus-vector interactions will provide us a valuable data which could be used to develop the methods of germplasm screening and further studies. [ Nader Yousef Asaad (PhD Candidate, 2018) Plant Protection Department, Faculty of Agriculture, Aleppo University, Syria); Supervisors: Dr. Amin Haj-Kassem (Aleppo University), Dr. Safaa Kumari (ICARDA), Dr. Salah Al-Chaab (GCSAR, Syria) and Dr. Atie Arab (GCSAR, Syria)].



**Molecular Characterization of Poleroviruses causing yellowing symptoms affecting cool-season food legumes and developing diagnostic reagents for their detection.** The cool-season food legumes (faba bean, chickpea and lentil) constitute a major source of protein for most of the people in West Asia and North Africa (WANA) countries. A number of pathogens including viruses affects productivity of these crops. The genus *Polerovirus* along with the genera *Luteovirus* and *Enamovirus* form the family *Luteoviridae* one of the most important families of plant viruses. Family members induce symptoms of stunt growth and yellowing or reddening of the foliage and can inflict major yield losses (more than 50% of economically important crops such as cereals, potatoes, legumes, sugar beets and sugarcane). They are transmitted by aphids in a persistent, non-propagative manner. Although Luteoviruses are considered to be important plant pathogens, their diagnosis is quite often a challenging task. This is due to their biological characteristics such as low titer, as they are restricted to the phloem tissue, incapability of mechanical



transmission as well as the fact that the symptoms they cause are indistinguishable to those caused by other biotic and abiotic factors. Lack of diagnostic reagents to monitor virus spread is a bottleneck in many countries, especially the antibodies of the Luteoviruses. Providing diagnostic reagents for virus detection significantly improves precision. They are also extremely useful in breeding for virus resistance, allowing researchers to measure virus multiplication and movement accurately and easily in the different breeding lines and is essential for conducting field surveys. They are also essential for conducting accurate biological characterization of these viruses in terms of major alternative hosts and vectors in order to develop effective management strategies for the diseases they cause. The proposed research has the following specific objectives: (1) Investigate serological and biological characteristics of different *Luteoviridae* isolates from different countries in WANA at ICARDA; (2) Development of sensitive *Polerovirus* detection by RT-PCR; (3) Study the molecular variability of different *Polerovirus* isolates from different countries of CWANA region, using sequence analysis; (4) Produce specific rabbit polyclonal antibodies against bacterially expressed coat protein of few species of *Polerovirus* using a recombinant DNA approach.

[Abdulrahman Moukahel (M. Sc. Candidate 2017, Syria, Registered at Sudan Academy of Sciences, Khartoum, Sudan); Supervisors: Dr. Safaa Kumari (ICARDA), and Dr Abdelmagid Adlan Hamed (Agricultural Research Corporation, Wad Medani, Sudan)].

## ❖ Arab Graduate Students Activities Abroad

**Arab Society for Plant Protection congratulates Dr. Sarra Bouagga, the fresh graduate and distinguished scientist for her successful Ph. D. thesis defense as well as the seven published articles in high ranking journals.** On April 6<sup>th</sup>, 2018, Sarra Bouagga (Tunisian) has defended her PhD thesis in the Department of Plant Protection and Biotechnology, at the Valencian Institute of Agrarian Investigation and Jaume I University, Castellón de la Plana, Spain. The committee members have approved the PhD degree based on the thesis examination and the discussion conducted during the defense.

The PhD thesis work provided important contributions to the biological control of pests in the pepper crop. More effective strategies were proposed, based on the combined action of predators and how to take advantage of the induced defensive responses of pepper plants.

The thesis work has contributed to further understanding the great success achieved by the programs of release, establishment and conservation of *Orius laevigatus* in sweet pepper. An evidence on the ability of *O. laevigatus* to induce plant defence is due to its phytophagous behavior, which was demonstrated in the thesis results. Attacked sweet pepper increased the emission of various volatiles compounds which contribute to the attraction of other natural enemies and repel thrips and whiteflies.

One of the main novel findings in the work reported that the use of the zoophytophagous predatory mirids (*Nesidiocoris tenuis* and *Macrolophus pygmaeus*) in the pepper culture joint with the predatory mite *Amblyseius swirskii* could be a more effective strategy than the current one with *O. laevigatus*. The use of mirids would extend the range of prey that currently control *A. swirskii* and *O. laevigatus*, since in addition to controlling thrips and whiteflies they are also capable of regulating populations of aphids. The doctoral thesis also opens the possibility of "vaccinating" the pepper plants from the nursery, since it has been studied that mirids predators induce defensive responses of sweet pepper and this response can last up to two weeks after transplanting. Together with the newly discovered ability of predatory mirids to induce plant defenses, thesis results expect that future biological control of sweet pepper in commercial greenhouse could rely on the release of *A. swirskii* with predatory mirids. What is clear is that the use of mirids in sweet pepper is possible and can be more effective than the current system based on *O. laevigatus*, therefore thesis results suggest that mirids deserve more attention in the b of sweet pepper pests, not only as efficient predators but also as plant defence inducer.

During the period of PhD thesis research (January 2014-April 2018), Dr. Bouagga has successfully published 7 research articles in prestigious indexed scientific journals and 3 other manuscripts are now in preparation for publication. In 2017, Bouagga rewarded a certificate of excellence as the best oral communication in the X National



Congress of Applied Entomology, Spanish Society of Applied Entomology [Sarrah Bouagga (PhD student, Tunisia-Spain), 2018]. These publications are the following:

- 1- **Combined use of predatory mirids with *Amblyseius swirskii* to enhance pest management in sweet pepper.** [Sarrah Bouagga, Alberto Urbaneja A & Meritxell Pérez-Hedo M, Journal of Economic Entomology, 111(3): 1112-1120. 2018].
- 2- **Comparative biocontrol potential of three predatory mirids when preying on sweet pepper key pests.** [Sarrah Bouagga, Alberto Urbaneja A & Meritxell Pérez-Hedo M, Biological Control, 121: 168-174. 2018].
- 3- **Zoophytophagous mirids provide an integral control of pests by inducing direct defenses, antixenosis and attraction to parasitoids in sweet pepper plants.** [Sarrah Bouagga, Alberto Urbaneja, José L. Rambla, Victor Flors, Antonio Granell, Josep Jaques & Meritxell Pérez-Hedo, Pest management science, 74(6): 1286-1296. 2018].
- 4- ***Orius laevigatus* strengthens its role as a biological control agent by inducing plant defenses.** [Sarrah Bouagga, Alberto Urbaneja, José L. Rambla, Antonio Granell & Meritxell Pérez-Hedo, Journal of pest science, 91(1): 55-64. 2018].
- 5- ***Orius laevigatus* induces plant defenses in sweet pepper.** [Sarrah Bouagga, Alberto Urbaneja, José L. Rambla, Antonio Granell & Meritxell Pérez-Hedo, Eds P.G. Mason, D.R. Gillespie and C. Vincent. Proc. 5th International Symposium on Biological Control of Arthropods. CAB International pp 121-123. 2017].
- 6- **Tomato plant responses to feeding behavior of three zoophytophagous predators (Hemiptera: Miridae).** [Meritxell Pérez-Hedo, Sarrah Bouagga, Josep Jaques, Victor Flors & Alberto Urbaneja, Biological Control, 86: 46-51. 2015].
- 7- **Puede el control biológico mejorarse en el cultivo del pimiento?** [Alberto Urbaneja, Sarrah Bouagga, Meritxell Pérez-Hedo, Phytoma España 264: 16-20. 2014].

**Zoophytophagous mirids provide pest control by inducing direct defences, antixenosis and attraction to parasitoids in sweet pepper pPlants.** In addition to their services as predators, mirid predators are able to induce plant defences by phytophagy. However, whether this induction occurs in sweet pepper and whether it could be an additional benefit to their role as biological control agent in this crop remains unknown. Here, these questions are investigated in two model insects, the mirids *Nesidiocoris tenuis* and *Macrolophus pygmaeus*. Plant feeding behaviour was observed in both *N. tenuis* and *M. pygmaeus* on sweet pepper and occupied 33% and 14% of total time spent on the plant respectively. The punctures caused by mirid plant feeding induced the release of a blend of Volatile Organic Compounds (VOCs) which repelled the herbivore pests *Frankliniella occidentalis* and *Bemisia tabaci* and attracted the whitefly parasitoid *Encarsia formosa*. The repellent effect on *B. tabaci* was observed for at least 7 days after initial exposure of the plant to *N. tenuis*, and attraction of *E. formosa* remained functional for 14 days. Feeding induced plant defences by mirid predators, their subsequent effects on both pests and natural enemy behaviour, and the persistence of these observed effects open the door to new control strategies in sweet pepper crop. Further application of this research is discussed, such as the vaccination of plants by zoophytophagous mirids in the nursery before transplantation. [Sarrah Bouagga (PhD student, Tunisia-Spain), A. Urbaneja, J.L. Rambla, V. Flors, A. Granell, J. Jaques & M. Pérez-Hedo, Pest Management Science, DOI: 10.1002/ps.4838. 2018].

**Combined use of predatory mirids with *Amblyseius swirskii* (Acari: Phytoseiidae) to enhance pest management in sweet pepper.** The combined release of *Orius laevigatus* (Fieber) (Hemiptera: Anthocoridae) with *Amblyseius swirskii* (Athias-Henriot) (Acari: Phytoseiidae) provides effective control of sweet pepper key pests, such as thrips and whiteflies. However, the management of the aphids can still be improved. Recently, the predatory mirids *Nesidiocoris tenuis* (Reuter) (Hemiptera: Miridae) and *Macrolophus pygmaeus* (Rambur) (Hemiptera: Miridae) have been found to be effective in the control of aphids, thrips and whiteflies when tested alone. Hence, integrating one of these two mirids with *A. swirskii* might enhance sweet pepper pest management. In this work, we began by investigating the co-occurrence of both mirid species when released together with *A. swirskii*. This was compared to the standard release of *O. laevigatus* with *A. swirskii*. *N. tenuis* and *A. swirskii* were involved in a bidirectional intraguild predation (IGP). On the contrary, this interaction (IGP) was apparently unidirectional in the case of *M. pygmaeus* with *A. swirskii* and *O. laevigatus* with *A. swirskii*. Both, *M. pygmaeus* and *O. laevigatus*

significantly reduced the abundance of *A. swirskii*. Secondly, in a greenhouse experiment, where the same release combinations were tested (either *N. tenuis*, *M. pygmaeus* or *O. laevigatus* combined with *A. swirskii*), IGP seemed to be neutralized. Mirids with *A. swirskii* significantly suppressed thrips, whitefly, and aphid infestations. Contrarily, the combined use of *O. laevigatus* with *A. swirskii* did not reached a satisfactory control for aphids, despite the reduction in thrips and whitefly densities. Therefore, our results suggest that the use of mirids combined with *A. swirskii* could result in more efficient and robust biological control programs in sweet pepper crops. [Sarrah Bouagga (PhD student, Tunisia-Spain), A. Urbaneja & M. Pérez-Hedo, *Journal of Economic Entomology*, 111(3): 1112-1120, 2018].

**Production of a new biopesticide from the bacteria *Burkholderia renojensis* to control nematodes infected crops.**

Dr. Wisam Aljuaifari, developed a new product which acts as biological seed treatment under the name BIOS<sup>TM</sup> Nematicide100 for controlling nematodes, insects and fungal pathogens. This product included new bacteria, the active production formation variant of *Burkholderia renojensis*. He spent two years working on this bacteria before publishing his result as a new Bionematicide in the United States market. Nowadays, this product is available in the market under the name BIOS<sup>TM</sup> Nematicide100 for nematodes management in the United States, and sold since 2017 by the company Albaugh, LLC. This work was conducted under the supervision of Dr. Gary Lawrence and Dr. David Long. Wisam also worked with Dr. Vincent Klink in the Molecular biology lab and discovered new resistant genes to the disease caused by nematodes during his study for the Ph.D. Degree. These genes were found related to Syntaxin family. Aljuaifari published a number of scientific articles in different journals around the world derived from his PhD thesis as follows:



- 1- A harpin elicitor induces the expression of a coiled-coil nucleotide binding leucine rich repeat (CC-NB-LRR) defense signaling gene and others functioning during defense to parasitic nematodes. USA - Plant Physiology and Biochemistry Journal, 121(12), 2017.
- 2- Analysis of the *Glycine max* role of Syntaxin (SYP22) in resistance to *Rotylenchulus reniformis*. International Journal of Pharmaceutical Quality Assurance, 9 (1-2), 2018.
- 3- Study physiology of roots growth for soybean by WinRhizo pro-software with Vam3 genes- International Conference in Iran- 2018.
- 4- Examination of *Burkholderia renojensis*, *Streptomyces avermentilis*, and *Bacillus firmus* to management of *Meloidogyne incognita* on corn. Journal of Pharmaceutical Sciences and Research, 10(11-12), 2018.
- 5- Molecular identification of *Tomato yellow leaf curl virus* and its whitefly vector (*Bemisia tabaci*)- Journal of Global Pharma Technology, 10(11-12), 2018.
- 6- Ability of systemic acquired resistance-saponin and a bacterial metabolite to reduce the soybean cyst nematode (*Heterodera glycines*) and the incidence of the sudden death syndrome (*Fusarium virguliforme*)- Journal of Agriculture Science, Karbala- Iraq, 5(4), 2018.
- 7- Study some of genes in *Glycine max* against soybean cyst nematode (*Heterodera glycines*) infection- Journal of Biochemical and Cellular Archives, 18(2), 2018.
- 8- Laboratory study of the effect of some Nutrient elements in some physiological criteria of the fungus (*Helminthosporium oryzae*) Breed de Haan). AL-Kufa Journal for Biology 1(1) 2009.
- 9- Effect of some foliar fertilizers and fungicides on the growing of cucumber plant and controlling the *Rhizoctonia solani*. AL- Kufa Journal for Agriculture Science, 4(1), 2012.
- 10- Effect the role for *Aspergillus niger* in protection Tomato plants (*Lycopersici*) from infection by some of fungi and *Rhizoctonia solni*. AL-Kufa Journal for Biology, 2 (1), 2010



**The role of volatile organic compounds (VOCs) in mediating the host plant preference of *Bagrada hilaris*.** The Painted bug *Bagrada hilaris* (Burmeister) (Hemiptera: Pentatomidae) is an invasive stink bug species that attacks mainly cruciferous vegetables crops, wild mustards and several ornamental plants of Brassicaceae family. This pest has its origin in Asia and Africa, and recently has been reported in United States, Mexico and Chile. *Bagrada hilaris* is very aggressive to young seedlings of *Brassica spp.* and can cause severe tissue damage and plant mortality. The role of the volatile organic compounds (VOCs) emitted from plant that might elicit host preference of this pest was not yet been investigated. In this study the role of VOCs in the host preference of *B. hilaris* adults to three *Brassica* species at seedling stage (7-days old): *B. oleracea* var botrytis, *B. napus* and *B. carinata* was evaluated in arena and olfactometer bioassays. In arena bioassays, *B. hilaris* individuals showed preference for *B. oleracea* var botrytis and *B. napus* rather than form *B. carinata*. Proportionally, the feeding injury was higher on *B. oleracea* and *B. napus* seedlings than on *B. carinata*. Similarly, in olfactometer the *B. hilaris* adults showed preference for *B. oleracea* var botrytis and *B. napus* rather than for *B. carinata*. Preliminary chemical analysis on the VOCs profile of these three species indicate similarities on the main chemicals emitted from *B. oleracea* var botrytis and *B. napus* and evident differences with the VOCs emitted from *B. carinata*. These results seems suggesting the possible role of olfaction in this host location processes of *B. hilaris*. [Mokhtar Abdulsattar Arif (PhD Candidate, 2018) Salvatore Guarino, Ezio Peri, Stefano Colazza Dipartimento di Scienze Agrarie, Alimentari e Forestali, Università degli Studi di Palermo, Viale delle Scienze, edificio 5, 90128, Palermo, Italy, XI European Congress of Entomology 2-6 July 2018, Napoli].



**A genetic screen for pathogenicity genes in the fungus *Diaporthe longicolla* causing Phomopsis seed decay of soybean.** Phomopsis seed decay of soybean is an important economic disease in the United States. The disease is predominantly caused by *Diaporthe longicolla*. Currently, the molecular basis of Phomopsis seed decay is poorly understood. The objective of this study was to identify genes of *Diaporthe longicolla* involved in colonization of soybean seeds. Random insertional mutagenesis via *Agrobacterium tumefaciens* mediated transformation generated 1251 mutants of the pathogen. Two mutants with visually reduced seed colonization were selected for further study from a forward genetic screen. Target enrichment sequencing identified a single site of *Agrobacterium*-mediated T-DNA insertion in each mutant. In mutants, a T-DNA insertion disrupted a putative gene. In the other mutant, a T-DNA insertion was identified in the putative promoter region of a gene. Virulence assays on seeds and stems indicated that both mutants were impaired in seed colonization and the ability to induce necrotic lesions on stems. Additionally, neither mutant produced pycnidia on four different culture media. These results provide insight into genes that could have roles in virulence and asexual development in *Diaporthe longicolla*. [Fakhir E. H. Al-Shuwaili (PhD Candidate, Iraq-USA, 2018) M. Zaccaron, S. Sharma, B. Bluhm. Department of Plant Pathology, University of Arkansas, USA. The American Phytopathological Society (APS)-SD Meeting]



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

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

#### Training of Trainer (ToT) on “The use of XylAppNENA and relative DataBase for the survey of *Xylella fastidiosa* in NENA countries”. Beirut, Lebanon 02-03 July 2018

Nowadays, the use of information technology is fundamental in plant protection especially for quarantine pests, that can support decision making in different countries. Towards the end of the regional project TCP/RAB/360 “Preventive Measures for the Introduction and Spread of *Xylella fastidiosa*-Olive Quick Decline Syndrome in NENA

Countries”, a regional Training of the Trainer (ToT) course was conducted in Beirut, Lebanon, 02-03 July 2018 with the participation of 6 project member countries (Morocco, Tunisia, Libya, Algeria, Egypt, Palestine and Lebanon). The objective of the training was the use of information technology for sampling and geo-localisation of the collected samples, traceability and storage of the data (sample position, operators, laboratory



ssay used, results of the analyses and finally a map of the sample with the result). Ad-hock software was programmed for each country and tablets were provided by the project to be used in the survey, data storage and traceability. At the same time a Data Base was built up for each country in the server of ministry of agriculture, and the Data Base will receive the relative data of the collected samples to be shared with laboratory diagnosis results and other resources. XylDatabase is a simple easy-to-use database that allow data storage, management and graphical visualisation.

#### Objective

- Training of participants from NENA countries on usage of XylApp (including field training)
- Training of participants from NENA countries on usage of XylDatabase

#### Conclusion and Comments:

The training has covered - in comprehensive way - all user aspects of the XylApp and XylBase

The lectures, tutorials and field training allow participant to use XylApp for sampling and visual inspection in *X. fastidiosa* survey programme.

Devices of the hand-held tablets will be provided to some NENA countries depending on country cultivated size and availability of maps. The source for XylApp and XylDatabase will be provided for some NENA

countries The communication with expert team was established for all participants to allow for future enquiries and to provide technical support when needed.





## Some Activities of Plant Protection in Food and Agriculture Organization of the United Nation (FAO-UN) and other Organizations

### DESERT LOCUST SITUATION

**Warning level: CALM**

**General Situation of the Desert Locust during June 2018 and Forecast until mid-August 2018 provided by the FAO Emergency Centre for Desert Locust (ECLO).**

#### **General Situation: The Desert Locust situation continued to remain calm during June**

Local breeding continued on a small scale in central Algeria where ground teams treated 581 ha of solitarious hoppers and adults near irrigated farms in June. In southwest Asia, isolated adults appeared in the summer breeding areas near the Indian border in Cholistan, Pakistan. No locusts were reported in other countries. During the forecast period, small-scale breeding will commence in the summer breeding areas of the northern Sahel between Mauritania and western Eritrea, initially in those places that have already received rainfall. As a result of very poor breeding during the past spring and winter, current locust numbers are extremely low throughout the recession area. A significant increase in locust populations will not occur unless there a several months of good rains and at least two generations of breeding. Nevertheless, regular surveys should be undertaken in all areas in order to detect the first signs of breeding and monitor progress. In the Central Region, there remains a possibility of breeding in areas that received unusually heavy rains from cyclones Sagar and Mekunu in May, primarily in southern and eastern Yemen, southern Oman, eastern Saudi Arabia, northwest Somalia and eastern Ethiopia. Regular monitoring during the next few months is recommended.

#### **Western Region**

Small-scale breeding continued in central Algeria and 581 ha were treated. During forecast period, small-scale breeding will commence in areas that receive seasonal rains in the northern Sahel of Mauritania, Mali, Niger, Chad and southern Algeria with low numbers of hoppers appearing. No significant developments are likely.

#### **Central Region**

No locusts were reported. During forecast period, breeding may occur in parts of southern Yemen and Oman, the Empty Quarter in eastern Saudi Arabia, northern Somalia and eastern Ethiopia where heavy rains fell from cyclones Sagar and Mekunu. Small-scale breeding will commence in areas of seasonal rains in the interior of Sudan and western Eritrea with low numbers of hoppers appearing. No significant developments are likely.

**Eastern Region** Isolated adults were reported at one place in the summer breeding areas in Cholistan, Pakistan. During forecast period, Small-scale breeding will occur in areas that receive the seasonal monsoon rains along both sides of the Indo-Pakistan border with low numbers of hoppers appearing. No significant developments are likely.

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

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

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

### July 2018 - Inter-Regional Training Course for Desert Locust information officers

The FAO's Commission for Controlling the Desert Locust in the Central Region (CRC) and the Desert Locust Information Service (DLIS) organizing an inter-regional workshop for the nationally designated Locust Information Officers in the respective regions during 15-19 July 2018, Cairo. The participants were from breeding countries in the Central Region (Djibouti, Eritrea, Ethiopia, Egypt, Oman, Saudi Arabia, Sudan and Yemen) and Eastern Region (Iran, India and Pakistan) with the participation of 20 trainees.



## THE 13TH SESSION OF COMMISSION FOR PHYTOSANITARY MEASURES OF THE IPPC WAS SUCCESSFULLY ORGANIZED IN ROME, ITALY

### The 13th Session of Commission for Phytosanitary Measures of the IPPC was Successfully Organized in Rome, Italy.

The 13th Session of the Commission on Phytosanitary Measures (CPM-13) of the International Plant Protection Convention (IPPC) was organized from 16-20 April 2018 at FAO Headquarters in Rome, Italy. More than 478 participants, representing 140 Contracting Parties and 31 observer organizations, are attending the meeting. The IPPC is recognized by the World Trade Organization as the only standard setting organization in the world for plant health.

The CPM-13 adopted five new and revised IPPC standards and two diagnostic protocols for regulated pests, to support its goal "Protecting the World's Plant Resources from Pests" (<https://www.ippc.int/en/>). Countries rely on IPPC



standards to help protect plants, which in turn helps to achieve greater food security, alleviate poverty, protect the environment and facilitate trade. Another great achievement of the CPM-13 is the reorganization of the IPPC fruit flies standards. Based on international practices, the reorganization will help the implementation of the suite of fruit fly standards to become more logical and simple to prevent the introduction and spread of fruit flies and to facilitate safe trade. The reorganization of these ISPMs was result of a huge collaborative work between the IPPC Technical Panel on Fruit Flies, the Standards Committee and several countries from different FAO regions.

The CPM-13 recognized the Caribbean Agricultural Health and Food Safety Agency (CAHFSA) as an RPPO under Article IX of the IPPC, which is the number 10th RPPOs of the IPPC Community. It also supported the below strategic issues:

- The further development of the new IPPC strategic framework for 2020-2030;
- The continuous effort on the sustainable funding to the IPPC Work Programme by adopting the CPM draft decision on the Supplementary Contribution Arrangement, and calling upon FAO to consider increasing the funding basis of the IPPC Secretariat through reallocation of funds from its Regular Program Budget.



- The skeleton of International Year of Plan Health in 2020 (IYPH 2020) programme events and encouraged Contracting Parties to support the endorsement at the UN General Assembly this year, and to contribute to the promotional activities.
- The strengthened cooperation between standards setting and implementation by setting up the process for the Call for Topics “Standards and Implementation”, and improving work of the Task Force on Call for Topics.
- The strengthened work on commodity and pathway specific ISPMs by developing the Terms of Reference for a small focus group on this issue.
- The extensive application for the IPPC ePhyto solutions, establishment of the ePhyto Business Model, and development of five-year Plan for the ePhyto.

The CPM-13 was concluded by IPPC Secretary Mr. Jingyuan Xia, who expressed his sincere gratitude to all CPM Bureau members for the strong support and guidance, and to all participants for their active participation and interventions. The IPPC Secretariat highest appreciation was also delivered to Ms Lois Ransom, the outgoing CPM Chair, as well as all outgoing CPM Bureau members for their outstanding contribution to the IPPC Governance and strong support to the IPPC Work Programme.

## ARAB SOCIETY FOR PLANT PROTECTION NEWS

### Releasing the New Society Website

In cooperation between the society president and the chairman of the publication and society website an initiative was taken to develop the society website [www.asplantprotection.org](http://www.asplantprotection.org) in a new design using the Word Press System which is ready to browse in two languages. The missing archives are in process to be included. Any suggestions and comments are welcomed

### Partnership (Alliance for the Protection and sustainable development of date palm Value Chain

The Arab Organization for Agriculture Development (AOAD), The Food and Agriculture Organization of the United Nations (FAO), the Khalifa International Award for Date Palm and Agricultural Innovation (KIADPAI), International Center for Agricultural Research in the Dry Areas (ICARDA), Arab Society for Plant Protection (ASPP), and International Center for Biosaline Agriculture (ICBA) and Phoenix group undersigning below:

- **Acknowledge** the cultural social, economic and ecological importance of date palm in the Near East and North Africa region.
- **Recognize** the role this unique tree has played through the millennia and continue to play providing to food security and nutrition in the region.
- **Acknowledge** the importance of the oasis ecosystem and the agroecology practices in fighting desertification, in biodiversity conservation in climate change adaptation and in the region.
- **Recognize** the high potential for the development of date palm value chains and its positive impact on smallholders and on local and national economies
- **Recognize** the growing threats to date palm in particular as result of trans boundary pests, including the Red Palm Weevil, and of unsustainable agriculture practices in the context of water scarcity;
- **Reaffirm** our commitment to support countries, local communities and farmers in the region to protect and develop date palm.
- **Call on** countries in the region and other stakeholders to develop and implement comprehensive strategies and programmes that support sustainable development of date palm.



**Establish a Partnership (Alliance for the Protection and sustainable development of date palm Value Chain with: The Secretariat of the Arab Organization for Agriculture Development (AOAD), the Food and Agriculture Organization of the United Nations (FAO), and the Khalifa International Award for Date Palm and Agricultural Innovation (KLADPAI)**

## Date Palm Festivals

Khalifa International Award for Date Palm and Agricultural Innovation (Kiadpai). Abu-Dhabi, UAE, organizing three International Date Palm Festivals during the second half of 2018, covers scientific symposiums for researchers and interested people in date palm development as well as other related activities:

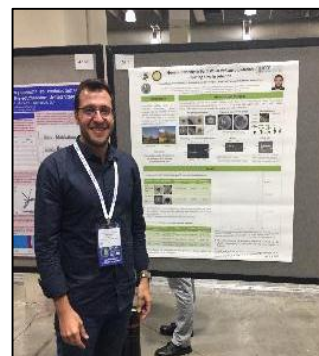
1- 2<sup>nd</sup> Sudan International Date Palm Festival in Khartoum 02-06 October 2018, for information [sg@kiaai.ae](mailto:sg@kiaai.ae), [www.kiaai.ae](http://www.kiaai.ae)

2- 1<sup>st</sup> Jordan International Date Palm Festival in Amman 21-23 October 2018, for information [info@jordanfestivals.com](mailto:info@jordanfestivals.com), [www.JordanFestivals.com](http://www.JordanFestivals.com)

3- 4<sup>th</sup> Egypt International Date Palm Festival in Siwa 7-9 November 2018 for information [www.siwafestival.com](http://www.siwafestival.com)

## 11th International Congress of Plant Pathology, 29 July-3 August 2018, Boston, USA

The 11<sup>th</sup> International Congress of Plant Pathology (ICPP) organized by the International Society of Plant Pathology (ISPP) was held in Boston, USA during the period 29 July-3 August, 2018. Around 2500 participants from 42 countries attended the meeting. Eleven Arab scientists from five Arab countries attended the meeting, namely: Dr. Desouky Ammar (Egypt), Mr. Akeel Mohammad, Ms. Hebba Al-Lami, Mr. Saddam Baba (Iraq), Dr. Nida Salem (Jordan), Dr. Rachid Tahzima (Morocco), Dr. Amer Fayyad, Dr. Wassim Habib, Dr. Khaled Makkouk (Lebanon), and Dr. Naeima Gorashi (Sudan). (Group photo of Arab Scientists). The congress program over a five days period included four plenary sessions, 70 concurrent oral sessions and 1218 poster presentations (photo of Arab scientists with their posters). The event also included 38 exhibits for companies having products of interest to plant pathologists. During the ICPP 2018, a formal session for the ISPP Council was held on the third day of the congress. The ISPP council is the governing body of ISPP and includes representatives of the 61 plant pathology/plant protection member societies from around the world that discuss and approve all ISPP activities. The Arab Society for Plant Protection was represented in this meeting by Dr. Emad Al-Maarouf (Iraq), Dr. Wassim Habib (Lebanon) and Dr. Khaled Makkouk (Lebanon). (Photo of the ASPP representatives in the ISPP Council meeting). It was decided that the next ICPP congress will be held in Lyon, France during August 2023. For more information on the congress and how to register check the congress website: [www.icpp2018.org](http://www.icpp2018.org)



**ASPP and FAO Organize a Workshop on some Invasive Pests in the NENA Region (Near East and North Africa), 4-5 November 2018, Alexandria, Egypt**

**FIRST ANNOUNCEMENT**



**“Detection, Epidemiology and Management of the Invasive Pests that Threaten Strategic Agricultural Crops in the Near East and North Africa”**

**Venue:** HELWAN PALASTINE HOTEL, Montazah Palace, Alexandria, Egypt

**Invitation:**

The Arab Society for Plant Protection (ASPP) ([www.asplantprotection.org](http://www.asplantprotection.org)), a scientific NGO society, has the pleasure to invite scientists, researchers, academicians, and those who are interested in agricultural fields to participate in a workshop entitled “Detection, epidemiology and management of the invasive pests that threaten strategic agricultural crops in the Arab region”.

**Workshop Focus:**

Through general presentations, the workshop will deal with invasive and epidemic insects and plant pathogens and their management strategies in the NENA region.

**Workshop Language:** Arabic and/or English

**Registration Fees:** (Hotel accommodations are NOT included)

Participation Type	Egyptians (L.E.)		Non-Egyptians (US \$)	
	Early Bird (up to 31 <sup>st</sup> Aug. 2018)	Late Bird (from 1 <sup>st</sup> Sept. 2018)	Early Bird (up to 31 <sup>st</sup> Aug. 2018)	Late Bird (from 1 <sup>st</sup> Sept. 2018)
• ASPP members	200	300	50	75
• Non-members	350	500	75	100
Graduate Students	200	300	50	75

- The registration fee covers participation in the workshop, coffee breaks and lunches (4-5 November 2018). It also includes ASPP membership for three years for non-members.
- Graduate students, should attach to their application a certificate in support of their current studentship status from their college/university/institution.

**Contacts:**

**ASPPWS2018 Organizing Committee**  
Phone/ Fax: +20235695317

**E-mail:** [asppws2018@gmail.com](mailto:asppws2018@gmail.com)  
**Mobile:** +2001223233610

**Workshop Board:**

**Prof. Dr. Ibrahim Al-Jboory**, ASPP President and Workshop Chairman  
**Dr. Thaer Yaseen**, Regional officer for the Near East and North Africa Region  
**Prof. Dr. Hassan Dahi**, Workshop Coordinator

**Workshop Organizing Committee:**

**Prof. Dr. Ahmed El-Heneidy** [aelheneidy@gmail.com](mailto:aelheneidy@gmail.com)  
**Prof. Dr. Ahmed Dawabah** [dawabah@hotmail.com](mailto:dawabah@hotmail.com)  
**Dr. Walaa Gamil** [walaagamil@yahoo.com](mailto:walaagamil@yahoo.com)  
**Dr. Dalia Adly** [dailaadly27@hotmail.com](mailto:dailaadly27@hotmail.com)



### Entry Visa:

Entry visa should be obtained personally by the applicants from the Egyptian Embassy in their country. The workshop committee will provide an invitation letter, upon request.

### Hotel reservation:

For hotel reservation, guests are requested to reserve through contacting Ms. Hoda Mustafa, hoda\_mustafa@hotmail.com at Helnan Hotel, Alexandria for confirmation. Guests will be informed later with the room reservation costs at Helnan and other hotels.

### Registration Form

#### ASPP Workshop (ASPPWS 2018) 4-5 November 2018, Alexandria, Egypt

Title: (Prof/Dr/Mr/Mrs/Ms) ..... First name: .....  
Middle name: ..... Family name: .....  
Date of birth: ..... Sex: .....  
Postal address: .....  
.....  
State/Province: ..... Pin code/Zip code: ..... Country: .....  
Phone: ..... Fax: ..... Mobile: .....  
E-mail: .....  
Date: / /2018 Signature: .....

### Registration Guidelines:

Registration should be submitted directly by hand or as an attachment via e-mail to the workshop organizing committee email address: [asppws2018@gmail.com](mailto:asppws2018@gmail.com)

## ASPP MEMBER NEWS

### Obituary

#### Mohamed Saleh Abdul Rasool (1943- 2018)

Dr. Mohamed Saleh Abdul Rasool passed away peacefully in his home in Baghdad on June 2018. He graduated from the University of Baghdad in 1966. In 1976 he graduated from Cardiff University, UK. Mr. Abdul Rasool served as a manager for the Iraqi Natural History Museum (NHM) for more than 35 years. He is one of the pioneer insect taxonomist in Iraq and the Arab region. Beside his job with the NHM he taught insect taxonomy to the undergraduate and graduate students at College of Agriculture and College of Science, University of Baghdad.

His death leaves a great vacuum which can't be easily filled. ASPP members share with his family a deep sorrow and send them their sincere condolences for this great loss.



## XYLELLA NEWS

In the framework of the Project "Capacity Building and Raising Awareness in Europe and in Third countries to Cope with *Xylella fastidiosa* "CURE-XF" funded by H2020 (Marie Skłodowska-Curie Actions (MSCA) Research and Innovation Staff Exchange (RISE) Call: H2020-MSCA-RISE-2016). Project number: 734353 The Lebanese Agricultural Research Institute (LARI) in Tal El Amara, Zahle, Lebanon/Plant Protection Department, represented by Dr. Elia Choueiri, hosts Dr. Raied Abou Kubaa, from the Italian National Research Council, institute for sustainable plant protection IPSP-CNR/BARI and Dr. Yara El Khoury, Ph. D. student at DISSPA/University of Bari Aldo Moro during July and August 2018. Dr. Toufiq Elbeaino and Dr. Franco Valentini from CIHEAM/IAM-Bari were also hosted by LARI during June 2018. These visits aim to exchange



scientific expertise through field inspections for olive trees and other hosts of X.F and its vectors and conducting serological and molecular analyzes at the laboratory to avoid the entry of this disease into Lebanon and the region. CURE-XF project coordinated by Dr. Maroun El Moujabber /CHIEAM-IAM Bari/ aims to exchange the scientific capacities and novelties among the European Countries as well as between EU and third countries, in particular sensitive neighbor countries and to strengthen the knowledge and the know-how on Xf in third countries having intense exchange of plant material with Europe, as well as to raise awareness in relation to Xf impacts and risks upon its establishment. [Raied About Kubaa, Plant pathologist at the Italian National Research Council, Institute for Sustainable Plant Protection IPSP-CNR/BARI, 2018]



## SCIENTIFIC *Xylella* BOOKS

The most relevant publications on the topic of *Xylella fastidiosa*, including books, proceedings of conferences, book of abstracts. Click on the link to read and download the full documents.

<http://www.xfactorsproject.eu/>



European Research on *Xylella fastidiosa*, March, 2018

[http://www.xfactorsproject.eu/wp-content/uploads/2018/03/European-research-on-Xylella-fastidiosa\\_Rid-1.pdf](http://www.xfactorsproject.eu/wp-content/uploads/2018/03/European-research-on-Xylella-fastidiosa_Rid-1.pdf)

Economic Impacts of *Xylella fastidiosa* on the Australian Wine Grape and Wine-Making Industries, July 2017

[http://data.daff.gov.au/data/warehouse/9aab/2017/EcoImpactsXylella/EcoImpactsXylellaFastidiosa\\_20171123\\_v1.0.0.pdf](http://data.daff.gov.au/data/warehouse/9aab/2017/EcoImpactsXylella/EcoImpactsXylellaFastidiosa_20171123_v1.0.0.pdf)

*Xylella fastidiosa* and the Olive Quick Decline Syndrome (OQDS). May 2017

<http://om.ciheam.org/om/pdf/a121/a121.pdf>

International Symposium on *Xylella fastidiosa*. Summary and Key Learnings. May 2017

<http://agriculture.gov.au/SiteCollectionDocuments/pests-diseases-weeds/xylella-symposium.pdf>

European Conference on *Xylella fastidiosa*: Finding Answers to a Global Problem Palma de Mallorca 13 November 2017 to 15 November 2017. Abstracts book:

[https://www.efsa.europa.eu/sites/default/files/event/171113/171113\\_book-of-abstracts.pdf](https://www.efsa.europa.eu/sites/default/files/event/171113/171113_book-of-abstracts.pdf)

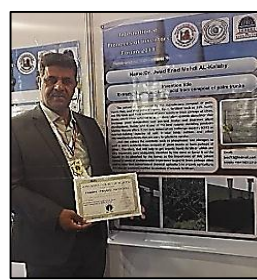
## Coming Events:

- From 10 September to 12 October 2018, the CURE-XF project is organising its 1st International Summer School on: “*Xylella fastidiosa* – detection, epidemiology and control measures”. The Summer School is divided in 4 sessions and will take place mainly at CIHEAM Bari premises, in the region of Apulia, Italy. The School is free of charge. The Summer School is jointly organised by CIHEAM Bari (Italy), CNR-IPSP (Italy), CRSFA (Italy), UNIBA (Italy) in collaboration with XF-ACTORS and POnTE projects. <http://www.xfactorsproject.eu/event/summer-school-xylella-fastidiosa-detection-epidemiology-and-control-measures/>
- From 12-16 November 2018, the CIHEAM Mediterranean Institute for Advanced Agronomic Studies in Zaragoza will be organizing an advanced course for professionals on “Plant diseases caused by *Xylella fastidiosa*: detection, identification, monitoring and control”. The course will involve 14 European and international expert lecturers and is being sponsored by the Spanish Agriculture Ministry and supported by several EU projects – XF-Actors, POnTE and MSCA-RISE CURE XF. <http://www.xfactorsproject.eu/event/plant-diseases-xylella-fastidiosa-detection-identification-monitoring-control/>
- The European Commission is launching a call for experts such as farmers, foresters, advisers, scientists and other relevant actors for a new EIP-AGRI Focus Groups on “Pests and diseases of the olive tree”. The Focus Group will start working in January 2019 and is expected to present their results and recommendations within 12 months. Deadline for applications is 10 September 2018. <http://www.xfactorsproject.eu/event/eip-agri-focus-group-pests-and-diseases-of-the-olive-tree-applications-deadline-10-september-2018/>

## GENERAL NEWS

### International Pioneers of Inventors, Istanbul 27-30/6/2018. The World's First IPIF

Dr. Jwad Enad Mahdi Al-Kalaby, from the Iraqi Ministry of Agriculture, participated in the World's First International Pioneers of Inventors organized in Istanbul from 27-30/6/2018 and granted an Award Certificate and inventor medal for his invention “**Apparatus for Extraction of Humic and Fulvic Acids from Compost of Palm Trunks**”. The extraction apparatus is very practical and easy to use beside that it facilitates a clean environment. Besides the date palm compost, the inventor was able to extract the two acids from the city wastes. Nowadays, humic and fulvic acids become one of the most important organic fertilizers use in agriculture. In this technique, the researcher found that the date palm compost contains 23% humic and 7% fuvic acids.



## Khalifa International Award for Date Palm and Agricultural Innovation Eleventh Session / 2019

The General Secretariat of the Khalifa International Award for Date Palm and Agricultural Innovation 2019 announced that the applicants wishing to participate in in this award are advised to apply from the 14<sup>th</sup> of May until 31<sup>th</sup> of October 2018. Interested candidates can apply to any of the following five categories, which are:

- 1-First category: Distinguished Innovative Studies and Modern Technology.
- 2-Second Category: Pioneering Development & Productive Projects.
- 3-Third Category: Distinguished Producers in Date Palm Sector.
- 4- Fourth Category: Pioneering and Sophisticated Innovations Serving the Agricultural Sector.
- 5-Fifth Category: Influential Figure in the Field of Date Palm and Agricultural Innovation.

The General Secretariat of the Award takes this opportunity to welcome the applications through the Award's website, and all the information and terms of participation are available at: [www.kiaai.ae](http://www.kiaai.ae)

The coordination office of Khalifa International Award for Date Palm and Agricultural Innovation, will reply to all inquiries by telephone: [00971 378 32 434](tel:0097137832434) or email: [info@kiaai.ae](mailto:info@kiaai.ae)

**Dr. Abdelouahhab Zaid, Prof., Secretary General, Khalifa International Award for Date Palm and Agricultural Innovation**



## Date Palm Pests and their Control in the Field and Store Workshop

In cooperation with the Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD) and the Department of Preventive Research, a workshop entitled "Palm pests and their control in the field and store" was organized within the project of developing vertical and ground date palm orchards to improve the quality and increase the production in the Arab region. The workshop lasted for 3 days from 5-8 /8/2018 in the Lattakia Research Center, in the presence of Dr. Rafiq Saleh, Director General of the Arab Center (ACSAD), Dr. Magda Mofleh, Director General of the General Commission for Scientific Agricultural Research, Dr. Bahaa Al-Rehabat, General Manager of the Palm Project, Dr. Khaldoun Taiba, Director of Horticulture Research and National Project Coordinator, Dr. Mohamed Salhab, Head of Lattakia Research Center, and 20 trainees. The lectures were delivered in accordance with the scheduled program, which included general overview on the agricultural services to the vertical and ground palm orchards. An attention were given to the varieties suitable for the Syrian conditions. Date palm pests in particular Red Palm Weevil, Mites, Borers, fungal; diseases and stored date pests. Control measures were highlighted and field as well as laboratory training were practiced. As a conclusion the program was very useful for pest identification and control. [Hanan Alkawas ,PhD 2018, ]







### **International meeting - Innovative and Sustainable Approaches to Control the Red Palm Weevil (RPW) | CIHEAM Bari, 23-25 October 2018.**

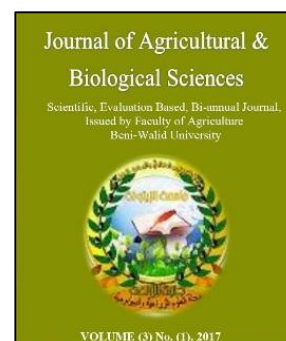
Following the Scientific consultation and High-level meeting on Red Palm Weevil (RPW) management (FAO-Rome, 29-31 March 2017) and the RPW steering committee meeting (FAO-RNE Cairo, 22-24 May 2017), a multi-disciplinary and multi-regional strategy document on RPW management was prepared by the RPW experts team, with the support of FAO, CIHEAM and NEPP technical officers. Among the proposed actions, the RPW experts highlighted the importance of organizing an international meeting, which will focus on the identification and transfer of the applied innovative techniques to control RPW and the need to set up a multi-disciplinary international network of stakeholders. Hence, the working group also proposed to postpone the 2nd FAO global meeting to 2019, in order to allow enough time for the establishment of the global platform and discuss the outcomes of this international meeting. Furthermore, in the framework of the 6th International Date Palm Conference (SIDPC), which was held at Abu Dhabi (UAE), a master session was organized on RPW highlighting the importance of using a multidisciplinary programme based on an integrated approach to control RPW (i.e. regulations, awareness-raising, inspections, mass trapping, preventive treatments and removal of the infected palms). In the same session, the RPW trust fund was also presented and special emphasis was laid on research, capacity development and knowledge transfer. In this context, CIHEAM Bari and FAO will organize a three-days meeting at CIHEAM Bari in the period 23-25 October 2018. This international meeting will focus on the use of a multidisciplinary approach, mainly aimed at the identification and transfer of new technologies/innovative methods to control RPW, covering a wide array of specific topics such as socio-economic impacts, early surveillance and detection of RPW, and eco-friendly control measures. Considering that FAO, through the RPW trust, will bear the costs relating to some relevant innovative tools for RPW control, the scientific committee of the meeting will select the most promising scientific activities, with a view to an efficient and sustainable application in the main palm growing areas.

[http://www.iamb.it/en/news\\_and\\_events/one?event=international-meeting-innovative-and-sustainable-approches-to-control-the-red-palm-weevil-rpw-ciheam-bari-23-25-october-2018&id=195](http://www.iamb.it/en/news_and_events/one?event=international-meeting-innovative-and-sustainable-approches-to-control-the-red-palm-weevil-rpw-ciheam-bari-23-25-october-2018&id=195)

### **Journal of Agriculture and Biological Sciences.**

A scientific journal published Bi-annual, and issued by the Faculty of agriculture, University of Beni-Walid, Libya. The journal publishes papers, short communications and review articles on all aspects of agriculture and biology, including bio-deterioration, Biotechnology, Ecology, Evolution, Genetics, Molecular Biology, Pathogens and Mutualistic interactions plants, Physiology, Systematics and Structure and Ultrastructure. Manuscripts submit in Arabic or English language, and send by email to: Journal of agriculture and biological sciences, Faculty of agriculture, University of Beni-Walid, Libya.

P. O: Box: 38648, Email address: [journalagricultural@hotmail.com](mailto:journalagricultural@hotmail.com)





## SELECTED RESEARCH PAPERS

- ***Pythium arrhenomanes* Causal agent of Root Rot on Yellow Maize in Mexico.** A. Reyes-Tena & R. Vallejo-González & R. Santillán-Mendoza & G. Rodríguez-Alvarado & J. Larsen & S. P. Fernández-Pavía, Australasian Plant Disease Notes ,2018. <https://doi.org/10.1007/s13314-018-0291-8>
- **Identification of Fusarium Species as Putative Mycoparasites of *Plasmopara viticola* causing Downy Mildew in Grapevines.** Mahesh R. Ghule & Indu S. Sawant & Sanjay D. Sawant & Rohit Sharma & Yogesh S. Shouche. Australasian Plant Disease Notes ,2018 . <https://doi.org/10.1007/s13314-018-0297-2>
- **Evaluation of Efficacy of Different Insecticides against *Philaenus spumarius* L., Vector of *Xylella fastidiosa* in Olive Orchards in Southern Italy, 2015–17.** Crescenza Dongiovanni; Giuseppe Altamura; Michele Di Carolo; Giulio Fumarola; Maria Saponari; Vincenzo Cavalieri, Arthropod Management Tests, Volume 43: ( 1),1 January 2018, tsy034. <https://doi.org/10.1093/amt/tsy034>
- **Inferring Pathogen Dynamics from Temporal Count Data: The Emergence of *Xylella fastidiosa* in France is probably not recent.** Samuel Soubeyr ,Pauline de Jerphanion, Olivier Martin ,Mathilde Saussac, Charles Manceau, Pascal Hendrikx, Christian Lannou, New Phytologist,2018. [doi:10.1111/nph.15177](https://doi.org/10.1111/nph.15177)
- ***Philaenus spumarius*: When an Old Acquaintance Becomes a New Threat to European Agriculture.** Journal of Pest Science, Volume 91: (3), pp 957–972, 2018. [Philaenus spumarius when an old acquaintance becomes a new threat](https://doi.org/10.1111/j.1365-3113.2018.00590.x)
- **Using Insects to Detect, Monitor and Predict the Distribution of *Xylella fastidiosa*: a Case Study in Corsica.** Astrid Cruaud, Anne-Alicia Gonzalez, Martin Godefroid, Sabine Nidelet, Jean-Claude Streito, Jean-Marc Thuillier, Jean-Pierre Rossi, Sylvain Santoni, Jean-Yves Rasplus,2018. doi: <https://doi.org/10.1101/241513>
- **Enfermedades Causadas Por La Bacteria *Xylella Fastidiosa*.** Blanca B. Landa, Ester Marco-Noales y María Milagros López (coordinator), 2018. [www.publicacionescajamar.es](http://www.publicacionescajamar.es)
- **First Detection of *Xylella fastidiosa* Infecting Cherry (*Prunus avium*) and *Polygala myrtifolia* Plants, in Mallorca Island, Spain.** October 2017, Volume 101,(10): Page 1820. <https://doi.org/10.1094/PDIS-04-17-0590-PDN>
- **Olive Quick Decline and *Xylella Fastidiosa* in Southern Italy: The State of the Art.** D.Boscia, M. Saponari, 2017. <https://zenodo.org/record/830600#.Wxzh8e6FO72>
- **Isolation, Genetic Characterization and Phenotypic Profiling of *Xylella fastidiosa* Strains from Costa Rica.** Rodríguez-Murillo, Neysa; Abdallah-Quirós, Isaías; Badilla-Lobo, Adriana; González-Espinoza, Gabriela; Chacón Díaz, Carlos, 2017. <https://doi.org/10.5281/zenodo.821596>
- **When Prevention Fails. Towards more Efficient Strategies for Plant Disease Eradication.** Antonio Vicent and Jose Blasco, This article is a Commentary on Hyatt-Twynam *et al.*, 214: 1317–1329.2017. <https://doi.org/10.1111/nph.14555>
- **Modelling the Spread and Control of *Xylella fastidiosa* in the Early Stages of Invasion in Apulia, Italy.** Steven M. White, James M. Bullock,Danny A. P. Hooftman, Daniel S. Chapman, Biological Invasions, Volume 19, ( 6): pp 1825–1837,2017. [doi: 10.1007/s10530-017-1393-5](https://doi.org/10.1007/s10530-017-1393-5)
- **Featured bibliography:** Various scientific publications on the different topics of research of *Xylella fastidiosa*. <http://www.xfactorsproject.eu/other-publications-featured-bibliography/>

### **NATURAL ENEMIES**

**Virulence of two Local Isolates of the Fungus *Beauveria bassiana* (Balsmo) to the Pre-Pupae and Adults of the Olive Fruit fly *Bactrocera oleae* (Rossi).** A.F. El-Habib, D.H. Nammour and A.Y. Ali (SYRIA). Pages 1-7

<http://dx.doi.org/10.22268/AJPP-036.1.001007>

**Population Dynamics of the Phytophagous Mites' Predators in Lemon Orchards in Lattakia Governorate, Syria.** S. Korhayli, S., Z. Barbar and L. H. Aslan (SYRIA). Pages 8-13

<http://dx.doi.org/10.22268/AJPP-036.1.008013>

### **ECOLOGY**

**Distribution of Honey and Pollen Forestry Trees Important to Honey Bee Along the Syrian Coast Using Geographic Information Systems.** N.Y. Daher-Hjaij, R. Al-Mohamed, F. Al-Ghamaz, M.M. Al-Zoubi and M.S. Qrebsa (SYRIA). Pages 14-20

<http://dx.doi.org/10.22268/AJPP-036.1.014020>

**Association of Crop Production Practices on the Incidence of Wilt and Root Rot Diseases of Chickpea in the Sudan.** O.E. Mohamed, S. Ahmed, M. Singh and N. Elmahi Ahmed (SUDAN, MOROCCO & JORDAN). Pages 21-26

<http://dx.doi.org/10.22268/AJPP-036.1.021026>

### **PLANT EXTRACTS**

**Effect of the Aqueous and Alcoholic Extracts of Rosemary (*Rosmarinus officinalis* L.) to Control the Bee Varoa (*Varroa destructor* Oud.).** N.Y. Daher-Hjaij, B.S. Khaled, M. El-Elan, H. Kuhayl, A. El-Menoufi and M. Hasan (SYRIA). Pages 27-31

<http://dx.doi.org/10.22268/AJPP-036.1.027031>

### **SYMPOSIA PAPERS Presented during 12<sup>th</sup> Arab Congress of Plant Protection held in Hurghada, Egypt, 5-9 November 2017**

**Building Bridges between Disciplines for Sustainable Crop Protection.** A. Muniappan and E.A. Heinrichs (USA). Pages 32-36

<http://dx.doi.org/10.22268/AJPP-036.1.032036>

**IPM to Control Soil-Borne Pests on Wheat and Sustainable Food Production.** A.A. Dababat, G. Erginbas-Orakci, F. Toumi, H.-J. Braun, A. Morgounov and R.A. Sikora (TURKEY, SYRIA, MEXICO & GERMANY). Pages 37-44. <http://dx.doi.org/10.22268/AJPP-036.1.037044>

**Risk Analysis and its Impact on Prevention and Control Measures of Economic Important Pests.** M. Ward and M. Suffert (FRANCE). Pages 45-49.

<http://dx.doi.org/10.22268/AJPP-036.1.045049>

**Molecular Tools Developed for Disease Resistant Genes in Wheat, Barley, Lentil and Chickpea: A Review.** A. Hamwieh, F. Alo, S. Ahmed (EGYPT & MOROCCO). Pages 50-56.

<http://dx.doi.org/10.22268/AJPP-036.1.050056>

***Xylella fastidiosa* and the Olive Quick Decline Syndrome in Southern Italy.** G.P. Martelli (ITALY). Pages 57-63

<http://dx.doi.org/10.22268/AJPP-036.1.057-63>

**Experience Gained from Efforts to Contain an Olive Decline in Southern Italy and Research Needs to Manage it in the Mediterranean Region.** Thaer Yaseen (ITALY). Pages 64-74.

<http://dx.doi.org/10.22268/AJPP-036.1.064074>

**Impact of Climate Change on Plant Diseases and IPM Strategies.** Sahar Zayan (EGYPT). Pages 75-79.

<http://dx.doi.org/10.22268/AJPP-036.1.075079>

**Impact of Climate Change Induced by Global Weather Engineering Technology of "Chemtrails" on Plant Protection.** M.M.M. El-Husseini (EGYPT). Pages 80-85.

<http://dx.doi.org/10.22268/AJPP-036.1.080085>

## **PAPERS, WHICH WILL BE PUBLISHED IN THE ARAB JOURNAL OF PLANT PROTECTION (AJPP), VOLUME 36, ISSUE 2, AUGUST 2018**

- **Monitoring of *Fusarium* wheat head blight distribution, its causal agents, and pathogenicity variation in Al-Ghab plain, Syria.** S. Al-Chaabi, S. Al-Masri, A. Nehlawi, L. Al-Matroud and T. Abu-Fadel (SYRIA).
- **First record of pear lace bug *Stephanitis pyri* (F. 1775) on narrow leaf firethorn shrubs *Pyracantha angustifolia* (Franch.) C.K. Schneid. in Syria.** Nesrin Diab, Ebraheem Al-Jouri, Nouraldin Daher-Hjai and Adel Almanoufi (SYRIA).
- **Biological Characteristics and the Predation Efficacy of *Acletoxenus formosus* (Loew, 1864) as a Predator of the Whitefly of Cabbage, *Aleyrodes proletella* (L.) under laboratory conditions.** Walaa Jaber Bou Hasan and Aziz Ibrahim (SYRIA).
- **Evaluation of Inoculation with Local isolates of *Beauveria bassiana* on the potato tuber moth, *Phthorimaea operculella* (Zeller) in the field.** N. Al-Saoud, D. Nammour and A.Y. Ali (SYRIA).
- **First record of the eucalyptus gall wasp *Ophelimus maskelli* (Ashmead) in Iraq.** Adnan Abdeljalil Lahouf, Taha Mousa Mohamed El-Seweydi and Ibrahim J. Al-Jboory (IRAQ).
- **Comparison of volatile emissions from uninfested and infested almond leaves with *Aporia crataegi* (L.).** Amani Jawdat Shllalo and Manal Daghestani (SYRIA).
- **Study of Life Table of *Cydia pomonella* L. at different Constant Temperatures under Laboratory Conditions.** Shadi Ibrahim El-Hajj, Abdel-Nabi Bashir and Loay Aslan (SYRIA).
- **Slow rusting of bread wheat landraces to *Puccinia striiformis* f.sp. *tritici* under artificial field inoculation.** Fida Alo, Walid Al-Saaïd, Michael Baum, Hesham Al-Atwani and Ahmed Amri (SYRIA, EGYPT & MOROCCO).
- **Laboratory evaluating of the efficiency of some substrates for storing entomopathogenic nematodes *Heterorhabditis bacteriophora*.** Khaled El-Asas, Amani Jawish, Asma Haydar and Asmaa Hasan (SYRIA).
- **Occurrence of potato viruses in the major potato growing areas in Saudi Arabia.** Khaled Abdallah Alhudaib (SAUDI ARABIA).
- **Effect of some bio-inducers in controlling the pathogen *M. phaseolina* that causes root and stem charcoal rot of strawberry.** Huriyea Husein Al-Juboory, Alaa Khudeir Hassan and Yaser Naser El-Humeiri (IRAQ).

## EVENTS OF INTEREST 2018-2020

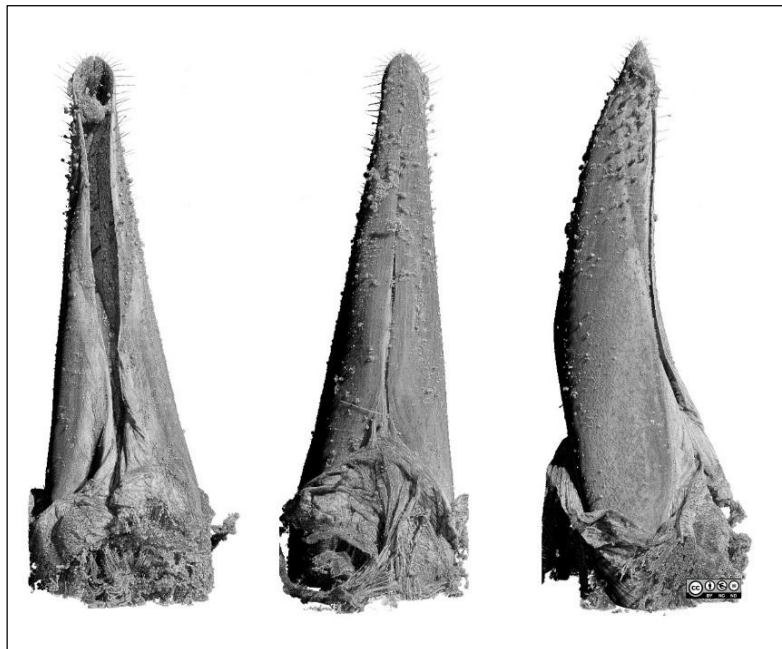
<b>29 July – 03 Aug, 2018</b>	11th International Congress of Plant Pathology (ICPP2018), Boston, Massachusetts, USA. <a href="http://www.icpp2018.org">www.icpp2018.org</a>
<b>July 29 -August 02, 2018</b>	The III Latin American Congress of Acarology (III CLAC), and VI Brazilian Symposium of Acarology (VI SIBAC). Pousada dos Pirineus, Brazil. <a href="http://www.clac3sibac6.com.br/">http://www.clac3sibac6.com.br/</a> .
<b>12-16 August, 2018</b>	XXX International Horticultural Congress "IHC2018", Istanbul-Turkey <a href="http://www.ihc2018.org/en/">http://www.ihc2018.org/en/</a>
<b>1 September, 2018</b>	1st Intl. Biocontrol Conference, Symposia on invasive weeds and invasive arthropods , Bangalore, India <a href="http://www.plantprotection.org">www.plantprotection.org</a>
<b>2-5, September ,2018</b>	International Agricultural, Biological And Life Science Conference, Edirne, Turkey. <a href="http://agbiol.org">http://agbiol.org</a>
<b>2 - 8 September,2018</b>	XV International Congress of Acarology in Antalya, Turkey. <a href="http://www.acarology.org/ica/ica2018/">http://www.acarology.org/ica/ica2018/</a>
<b>12-14 September 2018</b>	-10th European Conference on Pesticides and Related Organic Micropollutants in the Environment. -16 <sup>th</sup> Symposium on Chemistry and Fate of Modern Pesticides 10thMGPR – -International Symposium of Pesticides in Food and the Environment in Mediterranean Countries, Bologna, Italy)
<b>23-26 September 2018</b>	The Second Egyptian International Conference of Date Palm ((Sustainable development of date palm)). <a href="http://www.cldprd.com">www.cldprd.com</a>
<b>4-7 October 2018</b>	IX International Agriculture Symposium “AGROSYM 2018”-Bosnia & Herzegovina. CIHEAM-IAMB, Italy. <a href="http://www.Agrosym.Rs.Ba/Index.Php/En">www.Agrosym.Rs.Ba/Index.Php/En</a>
<b>22-25 , November ,2018</b>	International Conference on "Role of Soil and Plant Health in Achieving Sustainable Development Goals" at Bangkok, Thailand. <a href="http://ipsdis.org/bangkok-conference">http://ipsdis.org/bangkok-conference</a>
<b>19 -24 July,2020</b>	XXXVI International Congress of Entomology, Helsinki, Finland. <a href="http://www.ice2020helsinki.fi">www.ice2020helsinki.fi</a>

## MEMORIES 7<sup>TH</sup> ACPP AMMAN, OCTOBER 2000





## SELECTED PESTS



Three-dimensional rendering (Bruker HR-uCT SkyScan 1272) of a RPW vaginal base (Wattanapongsiri, 1966) left to right venter, dorsum and left side. Courtesy of Carlo Porfido PhD (CIHEAM-IAMB) and Francesco Porcelli PhD AP DiSSPA UNIBA Aldo Moro.

By Carlo Porfido skilled in use of microCT, the images is a rendering of thousands of X-ray slices

The Editorial board of the Arab and Near East Plant Protection Newsletter highly appreciates the contribution of several Arab scientists in this issue, namely:

Abdul-Sattar A. Ali, Mahmoud M. A. Youssef (Egypt), Ziad Barbar(Syria), Abdulnabi Basheer(Syria), Nisreen Alsoud(Syria), Thaer Yaseen-(Bari-FAO), Awatif Abdul- Fatah Hamodi(Iraq), Khdiya Suliman Mohamed Ali (Libya), Mohamed Mannaa (Egypt-Korea), Sarra Bouagga (Tunis), Hussein Ali Salim(Iraq), Mokhtar Abdulsattar Arif (Italy), Jwad Enad Mahdi Al-Kalaby(Iraq), Raied Abou Kubaa (Bari- Italy), Mamoon Alalawi (FAO-Egypt), Fakhir Hameed Al-Shuwaili (Iraq-USA), Wassim Habib (Lebanon), Farah Baroudy (Lebanon), Yara El Khoury (Lebanon), Emad Al-Maaroof (Iraq), Aziz Ajlan (Saudi Arabia), Fateh Omar Zedan(Libya), Mohammed Shaker mansoor (Iraq), Maadh A. Alfahad(Iraq), Mohamed Samir Tawfik Abbas(Egypt), Mona A. Shueb (Egypt), Houda Boureghda(Algeria), Yara El Khoury(Lebanon), Ali Merjan(Iraq), Francesco Porcelli(Italy). Mohamed Waled Negm(Egypt), Nader Yousef Asaad(Syria), Abdulrahman Moukahel(Syria), Wisam Aljuaifari(Iraq).

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.