ARAB AND NEAR EAST PLANT PROTECTION NEWSLETTER

Food and Agriculture Organization of the United Nations

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EDITORIAL

Xylella fastidiosa: A Serious Threat to the Mediterranean Olive Heritage.

X. fastidiosa, a quarantine organism included in the EPPO list A1, is a gram negative bacterium which has long been known to affect a large number of plant species (ca 300), primarily grapevine (Pierce disease) and citrus (Citrus Variegated Chlorosis), mainly in the American continent. In October 2013, it was reported for the first time in the Euro-Mediterranean region, on olive trees in Apulia, which is the main olive-producing region of Italy (Saponari et al., 2013). Its presence is highly associated to the olive quick decline syndrome (OQDS), a severe disease which is killing thousands of Olive trees (*Olea europaea*), mainly the ancient specimen which have been landmarks of the Mediterranean region for thousands of years. However, associated to OQDS are also fungal species belonging to the genus *Phaeoacremonium* and *Phaemoniella*, which may play a role in the severity of the symptoms. A great variability among olive varieties in OQDS severity, associated to the presence of *X. fastidiosa*, has been assessed in South Italy. Based on such variability a different impact of the infection could be envisaged in each country based on pathogen susceptibility of native olive varieties. The new *X. fastidiosa* strain found in Italy and named "CoDiRO" belongs to the subspecies pauca; it infects more than 20 host species, primarily olive, cherry, polygala and oleander but not grapevine and citrus spp.. The high level of genetic identity with the *X. fastidiosa* strains from Costa Rica could explain the potential origin of the CoDiRO strain from Central America, from which millions of ornamental plants are annually imported without targeted inspections at the EU entry points. Indeed, after the first finding in EU, several new interceptions of the bacterium occurred in other European countries (e.g. France, The Netherlands) mainly on ornamental coffee plants imported from Costa Rica and Honduras. In 2015, *X. fastidiosa* subsp. *multiplex*, was intercepted in France on *Polygala myrtifolia* and other ornamentals. Apart the movement through infected propagating material, in nature this pathogen can be vectored by insects. The assessed vector of the Apulian strain is the spittlebug *Philaenus spumarius*, a polyphagous Auchenorrhyncha insect widely distributed in the Euro-Mediterranean region, which is rapidly disseminating the bacterium in olive groves (Cariddi et al., 2014). At least two more species, *Neophilaenus campestris* and *Euscelis lineolatus*, proved to be capable of harbouring the bacterium, although there is no evidence so far that they can transmit the infection (Elbeaino et al., 2014). There is no record of successful eradication of *X. fastidiosa* once established outdoors due to its broad range of plant hosts and vectors. However, control measures in EU are mainly based on the prevention of introduction of the pathogen in free areas and on the containment of the outbreak where the pathogen is not well established yet. The severe threat posed by *X. fastidiosa* in Italy, which is a new strain mainly affecting olive trees, prompted the Italian Ministry of Agriculture to appoint a special Commissioner to deal with this phytosanitary "emergency" and to establish a national scientific committee for advising technical decisions.

CIHEAM of Bari has developed and applied in the official monitoring programme efficient and innovative monitoring and detection methods, some of which have been already included in the official monitoring of the pathogen in Italy: OQDS-suspected trees are identified by photointerpretation of high resolution aerial images, field data area acquired through an application (XylApp) and sent to a central server (XylWeb) for their rapid storage and analysis (D'Onghia et al., 2015). Moreover, on site pathogen detection has been developed in plants and 'spy insects' by real time LAMP (loop mediated isothermal amplification) and DTBIA (Direct tissue blot immuno assay) in order to avoid the movement of infected plant material in pathogen-free areas. Apart the uprooting of infected plants in the buffer zones, where the pathogen should be absent, vector control is also mandatory based on an integrated management approach against all life stages of the insect. Furthermore, plant nurseries are submitted to regulatory restrictions concerning the production and movement of Xf-host plants.

The experience gained on *X. fastidiosa* in Italy should be soon considered by all Mediterranean countries for taking an immediate action primarily for the safeguard of the olive trees in the whole region, posing attention to ornamental plant species, which are main carriers of most undesirable pests because scarcely regulated by the law. To the aim efficient early surveillance programmes of the infection, funds for developing specific research and strong information campaigns oriented to the whole civil society should be soon taken into account.

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(Photos Source: www.femuacorsica.com)

❖ Crop Protection News from Arab and Near East Countries

INVASIVE AND NEW PESTS

ALGERIA

First reports of *Macrohomotoma gladiata* in Italy and Algeria. *Macrohomotoma gladiata* (Hemiptera: Homotomidae) is a psyllid of Asian origin which feeds on *Ficus microcarpa* (other *Ficus* species such as *F. benghalensis* and *F. microphylla* are mentioned in the literature but these host records are considered doubtful by several authors). Colonies of *M. gladiata* develop and feed on new shoots, which become covered by white waxy secretions. Young stages of the psyllid live protected under these secretions. Following feeding, shoots become deformed, stop developing and may finally die. This pest first came to the attention of the EPPO Secretariat when scientists reported its presence in Spain near Alicante (see EPPO webpage and EPPO RS 2011/219). In Spain, *M. gladiata* was initially recorded in October 2009 in Baleares on the Island of Mallorca in the municipalities of Andratx, Palma and Marratxí, and then in Ibiza. Additional studies detected the pest in several provinces in mainland Spain (Alicante, Cádiz, Málaga, Murcia, and Valencia) and on Islas Canarias. In Italy, *M. gladiata* was observed for the first time in July 2011 in Napoli (Campania region) on ornamental *Ficus* planted along two avenues (set far apart). In 2014, specimens of *M. gladiata* were collected on *F. microcarpa* in Sicilia, in different sites (urban and suburban) of the cities of Catania and Siracusa Finay, severe damage caused by *M. gladiata* has been reported on urban *Ficus* trees in the city of Mostaganem in Algeria since spring 2015. **Source: EPPO Reporting Service 2016 no. 1.**

IRAQ

New record of the Asiatic garden beetle *Maladera castanea* (Arrow 1913) in the Nurseries of Karbala Province, Iraq. Field survey was conducted during the year of 2015 in the ornamental Nurseries in the region of Al-Hafud, province of Karbala. The survey showed a presence of the Asiatic garden beetle *Maladera castanea* (Coleoptera: Scarabaeidae) causing an important damage to the ornamental plants in this area. The insect's identification was confirmed by the Iraqi Natural History Museum. The damage induced by the beetle larvae, which feed on the host roots while the adults chew the leaves of another host. The most suffered plants are *Callisteph chinensis, Rosa damascene, Hedera helix* ,*Yucca* sp, *Phoenix sp, Conocarpus* sp, *Biota orientalis, Cupressus sempervirens, and Tagetes* sp.The beetle was introduced in 2014 to Iraq with the ornamental shipments coming from Syria.[Ahmed Boraire, Abu Dage, Nasser Al-Jamali and Noor Ali Al-Gazali, (Part of Master Thesis of the first author, **under publication, 2016)**].

IRAN

First report of *Sugarcane streak mosaic virus* in Iran. Sugarcane is one of the most economically important crops in southwestern Iran and viral diseases such as those caused by *Sugarcane mosaic virus* (SCMV) have caused yield losses in some fields. A survey was conducted in Khuzestan province to investigate the distribution of sugarcane diseases caused by luteoviruses, poaceviruses and potyviruses. During September to November 2014, symptoms associated with SCMV, *Sugarcane streak mosaic virus* (SCSMV) and *Sorghum mosaic virus* infection were observed in some sugarcane fields. These symptoms included interveinal chlorotic specks, streaks or stripes on the leaves. Symptom-bearing leaf samples were collected, transferred to the laboratory on ice, and then freeze-dried. Total RNA was extracted using a phenol:chloroform-based method (Damaj *et al*., 2009). With the aim of detecting SCSMV, RT-PCR was performed using specific primers (SCSMV-F; 5'-GGCAAGTYGAGTAYATGTCGCA-3' and SCSMV-R; 5'-GTGGTGTGTAYCTCATCATCTGC-3') designed to amplify 570 bp from the nuclear inclusion B and coat protein gene sequences. Amplified fragments of the expected size were sequenced and deposited in GenBank (Accession Nos. KR868693 and KR920050). A BLASTn search showed more than 90% identity with other isolates (AM749393 and GQ388116). SCSMV was first reported in the USA by Hall *et al*. (1998) and subsequently detected in Asia (He *et al*., 2014). This is the first report of SCSMV in Iran. Symptoms were observed on all cultivars surveyed (cp48-103, cp69-62 and cp57-614) and in approximately 20% of the area under cultivation. The most severe symptoms were seen on cv. cp57-614 with about 70% of the leaf area exhibiting symptoms. In addition, these plants

were shorter and had smaller stem diameters compared to healthy plants. [N. Moradi, H. Rajabi-Memari, M. Mehrabi-Koushki, K. Taherkhani, H. Moazzen-Reza-Mahalle, F. Sheikhi, N. Nasirpour and Z. Sanjabifard (Iran). New Disease Reports.32, 2, 2015].

***Bactrocera oleae* (Diptera: Tephritidae) in Iran: An invasion from the Middle West.** Despite an age-old tradition of olive growing and its geographical location, Iran was apparently free of the olive fly, *Bactrocera oleae* (Rossi, 1790) (Diptera: Tephritidae), the major worldwide olive tree pest, until the last decade. However, this situation has changed radically since *B. oleae* was first reported in 2004, and the olive fly is now Iran's most important pest of olive trees, and a very serious threat to olive production in the Northern and more humid parts of the country. Genetic analyses of mitochondrial markers of *B. oleae* collected in the traditional olive growing area in Northwestern Iran were used to determine the origin of this pest. The results indicate it was most likely imported on olive trees from the Central Mediterranean area. [Sadrollah Ramezani, Imen Blibech , Fernando Trindade Rei , Barbara van Asch and Luís Teixeira da Costa. Eur. J. Entomol. 112(4): 713–721, 2015.]

JORDAN

First report of *Tomato chlorotic virus* in Jordan. In January 2014, symptoms of interveinal yellowing, bronzing, thickening, and downward rolling of lower leaves were observed on tomato (*Solanum lycopersicum*) crops grown under plastic houses and open fields in the Jordan Valley, Jordan. In diseased crops, large numbers of whiteflies (*Bemisia tabaci*) were also observed. Leaf samples were collected from symptomatic tomato plants and tested (PCR tests, sequencing) for the presence of criniviruses. Results confirmed the presence of *Tomato chlorotic virus* (*Crinivirus*, ToCV – EPPO A2 List) in symptomatic samples. In addition, experiments with *B. tabaci* adults exposed to symptomatic tomato leaves for a 48-h acquisition access period resulted in the transmission of ToCV to healthy tomato plants (with a 48-h inoculation access period). This is the first time that ToCV is reported from Jordan. Further studies are needed to determine the incidence and distribution of ToCV in the country. The situation of *Tomato chlorotic virus* in Jordan can be described as follows:Present, first found in 2014 in the Jordan Valley on both protected and outdoor tomato crops.[Salem NM, Mansour AN, Abdeen AO, Araj S, Khrfan WI. First report of *Tomato chlorosis virus* infecting tomato crops in Jordan. Plant Disease 99(9), p 1286.2015].

SAUDI ARABIA

New aphid records for Saudi Arabia (Hemiptera: Aphidoidea). Fourteen species of aphids (Hemiptera: Aphidoidea) are recorded as new to Saudi Arabia. These are: *Aphis coreopsidis* (Thomas, 1878); *Aphis illinoisensis* Shimer, 1866; *Baizongia pistaceae* (Linnaeus, 1767);*Capitophorus elaeagni* (del Guercio, 1894); *Dysaphis plantaginea* (Passerini, 1860); *Eucarazzia elegans*(Ferrari, 1872); *Geoica lucifuga* (Zehntner, 1897); *Hayhurstia atriplicis* (Linnaeus, 1761); *Macrosiphoniella absinthii* (Linnaeus, 1758); *Macrosiphoniella sanborni* (Gillette, 1908); *Smynthurodes betae* Westwood, 1849; *Uroleucon cichorii* (Koch, 1855), and *Wahlgreniella nervata* (Gillette, 1908). Among these, three species, i.e. *A. coreopsidis*, *A. illinoisensis*, and *W. nervata* are alien species.[Sabir Hussain; Yousif Aldryhim; Al-Dhafer, H.; Halbert, S. E.; Thomas, J. (Saudia). Zoology in the Middle East. 61(4): 368-371 2015].

A new species of the leafhopper genus *Naevus* Knight, 1970 (Hemiptera: Cicadellidae: Deltocephalinae: Opsiini), from Saudi Arabia. The genus *Naevus* Knight, 1970 is recorded from the mountains of southwestern Saudi Arabia, the first record from the Arabian Peninsula. A new species, *Naevus hathali* El-Sonbati & Wilson sp. n. is described here, which appears to have an asymmetric aedeagus. An illustrated key to *Naevus* species is presented to facilitate identification. [Saad A. El-Sonbati, Michael R. Wilson and Hathal M. Al Dhafer.(Saudia). Zootaxa 4059 (2): 393–400, 2015.]

OMAN

First Report of Root Rot and Crown Necrosis Caused by *Pythium aphanidermatum* on *Phaseolus vulgaris* in Oman. In March 2013, 90% of mature bean plants (*Phaseolus vulgaris* L. cv. Kendo) grown on a commercial farm in the north of Oman (Barka) developed symptoms of root rot and necrotic streaks on the crown area of the stem and wilted. A *Pythium* spp. was isolated consistently from roots and basal stems on 2.5% potato dextrose agar (PDA) and V8 (100% vegetable juice) plus 1.5% agar technical. Colonies of *Pythium* spp. on PDA and V8 plus agar developed

abundant aerial mycelia, with the main hyphae being up to 10 µm wide. Zoosporangia were made up of terminal complexes of swollen hyphal branches of different lengths and up to 22 µm wide. Oogonia were terminal, globose, and smooth with a 26-µm diameter (average of 20). Antheridia were mostly intercalary, sometimes terminal, and broadly sac-shaped, 15 µm long and 11 µm wide (average of 20). Oospores were aplerotic, 23 µm in diameter (average of 24), with walls 1 to 2 µm thick at 25°C (ambient temperature). The internal transcribed spacer of the ribosomal DNA (ITS1 and ITS4) sequence of the isolates matched the sequence of *Pythium aphanidermatum* (Edson) Fitzp. in GenBank. The sequence of isolate Py1 was deposited in GenBank as Accession No. KM102739. This isolate was identified as *P. aphanidermatum* on the basis of morphological and cultural characteristics and the ITS rDNA sequence. The ITS was found to share 100% nucleotide similarity to previously published sequences of the ITS (KJ755088). To fulfill Koch's postulate, a 5-mm plug of 5-day-old mycelium of isolate Py1 grown on 2.5% PDA was used to inoculate healthy seedlings of beans cv. Kendo. The plug was placed adjacent to the bean stem; PDA served as a control. Five replicate plants were used for the treatment and the control. The plants were maintained in a glasshouse at a temperature of 23 to 25°C. The plants were watered every day. The irrigation water had an electrical conductivity value of 0.2 dSm^{-1}. Eleven days after inoculation, 90% of the plants developed root rot, crown necrosis, and wilt symptoms similar to those observed in the field. On the other hand, control plants did not show any symptoms. The pathogen was re-isolated from roots and basal stems of symptomatic plants. To our knowledge, this is the first report of *P. aphanidermatum* as the causal agent of root and crown necrosis of mature bean plants in Oman. Future studies should focus on evaluating management options for this disease to avoid possible losses in a crop that has a high export value in Oman. [I. H. Al-Mahmooli, A. R. Al-Fahdi, A. M. Al-Sadi, and M. L. Deadman (Sultanate of Oman). 99(3): 419.2, 2015].

TURKEY

First Report of *Phytophthora palmivora* Causing Crown and Root Rot of Kiwifruit (*Actinidia deliciosa*) in Turkey. Kiwifruit (*Actinidia deliciosa* (A. Chev.) C. F. Liang & A. R. Ferguson) was introduced into Turkey in 1988. Since its entrance, kiwifruit cultivation has expanded to 29,000 ha, mainly in the Marmara, Black Sea, Mediterranean, and Aegean regions. In June 2013, crown and root rot symptoms were observed on approximately 10% of 3-year-old kiwifruit vines (cv. Hayward) in an experimental 200-vine orchard in Elazığ Province (38°29′01″ N; 38°34′44″ E). Under the bark, necrotic lesions and decay extended from the fine roots to the crown and basal stem area. Crown and root samples from 12 kiwifruit vines exhibiting symptoms were collected, cut into 1-cm^2 pieces, soaked in a solution of 0.5% sodium hypochlorite for 2 min, rinsed in several changes of sterile water, and blotted dry using filter paper. The pieces were placed on corn meal agar amended with P5ARP (17 g of cornmeal agar, 5 mg of pimaricin, 250 mg of ampicillin, 10 mg of rifampicin, and 100 mg of pentachloronitrobenzene in 1 liter of water) (Jeffers and Martin, 1986), and incubated in darkness at 27°C for 7 to 12 days. Twelve isolates of a *Phytophthora* spp., each from a different vine, were obtained in pure culture by hyphal tip transfer to V8 juice agar medium. Isolates of this putative pathogen had a subtle chrysanthemum pattern on the top side of this medium. The minimum, optimum, and maximum temperatures for mycelium growth on PDA were 11, 27, and 34°C, respectively. Agar discs with mycelium sampled from the margin of the actively growing colonies were submerged in sterilized deionized water for 5 days at 25°C. On submerged discs, all isolates produced conspicuous papillate, caducous, hyaline sporangia of varying shapes, mostly elliptical to ovoid with the widest part close to the base on sympodial sporangiophores. Sporangia with short pedicels (3.3 µm) were 34 to 66 × 26 to 41 µm with a length/width ratio of 1.4 to 1.7. Terminal and intercalary chlamydospores of the isolate were globose and 35 µm in diameter. On the basis of morphology, the pathogen was identified as *Phytophthora palmivora* (E. J. Butler) E. J. Butler (Stamps 1985). Pathogenicity of three isolates was evaluated on 8-month-old kiwifruit cv. Hayward seedlings under glasshouse conditions (25 to 32°C during the day, above 20°C at night). Inoculations were performed by pipetting 100 ml of a zoospore suspension (10^5 zoospores per ml) into each of four 90-mm-diameter holes located in root tissue within 10 cm of the base of each seedling (7 seedlings per isolate). Ten plants were treated with sterilized water as control. Upper surfaces of holes were covered by sterilized soil. Plants were watered daily as required to keep the soil wet. All inoculated kiwifruit plants showed decline symptoms similar to those observed in the field: necrotic leaves; defoliation; and a 40% reduction of roots after 2 months. *P. palmivora* was reisolated from the root lesions on all inoculated plants; control plants remained healthy. The ITS region of rDNA was amplified with primers ITS6/ITS4 (Cooke et al. 2000) and sequenced. BLAST analysis revealed 99 to 100% identity with *P. palmivora* isolates deposited at GenBank (Accession Nos. EU194438 and KC415919) and the Phytophthora database (http://www.phytophthoradb.org). The nucleotide sequence (723 bp) was submitted to GenBank as Accession No. KP985656. To our knowledge, this is the first report worldwide of *P. palmivora* causing crown and root on kiwifruit vines, which represents a new host for

this oomycete. In 2015, all kiwifruit vines in the experimental orchard were killed by this oomycete. *P. palmivora* has the potential to be a major limiting factor in kiwifruit production.[O. Çiftçi, Ç. U. Serçe, Ş. Türkölmez, and S. Derviş(Turkey), Plant Disease. 100, 1.2016]

YEMEN

First report of *Euphyllura olivina* in Yemen. In October 2015, *Euphyllura olivina* (Costa) (Homoptera: Psyllidae) was found infesting an exotic olive (*Olea* spp.) trees in Yemen, Sadah Province. Field surveys detected the pest in one olive farm located in Wadi Badr in Ghamr district of Sadah. The survey conducted during the beginning of October 2015 showed that 30% of the inspected olive trees were infested by *E. olivina*. This is the first report of *Euphyllura olivina* in Yemen. The life stages of *Euphyllura olivina* include an egg, five nymphal instars, and adults. *Euphyllura olivina* is very small insect ranging from 0.4 to 1.5mm in length as immature and about 2.5mm as adults. Adults are light tan, and strong jumpers. Forewings are marked with a few small dark spots. Nymphs are flat, green to tan, and secrete a white waxy coating that covers the entire colony. The eggs are elliptical, 0.3mm long, pale yellow, and attach to the substrate by a pedicel. The life cycle is about three months depending on temperature. There are three generation per year. Females lay eggs on the new shoots and buds. A single female able to lay 1000 eggs or more.[Hassan Sulaiman Ahmed Mahdi and Saleem Qasim Ali Hamlaan. (Yemen). Plant Protection Department, Faculty of Agriculture, Sana'a- University and Ministry of Agriculture and Irrigation, Yemen,(Personal Communication)].

RESEARCH HIGHLIGHTS

ALGERIA

Insecticidal activity of plant methanolic extracts for the control of *Sitophilus oryzae*, a stored products insect. Research has increasingly been performed to identify alternative to chemicals which were mainly used to manage pests of stored product. This study was conducted to determine the insecticidal activity of methanolic extracts from *Artemisia absinthium* L. (Asteraceae), *Juniperus phoenicea* L. (Cupressaceae) and *Tetraclinis articulata* (Vahl) Mast. (Cupressaceae) collected during spring period (2013) in the North of Algeria against rice weevil - *Sitophilus oryzae* L. (Coleoptera, Curculionidae), a pest of primary infestation of stored grains, widely spread worldwide, and very destructive. The insecticidal activity was evaluated with the contact toxicity. The yield of extraction was in the range of 11 - 21 % and methanolic extracts were highly effective. The mortality was recorded after 24 h for *Artemisia absinthium*. The LC50 values of each plant methanolic extract were estimated. Our work clearly shows the importance of the use of plant methanolic extracts to control rice weevil in stores.[Yasmine DANE, Fazia MOUHOUCHE(Algeria).10th Conference on integrated Protection of Stored Products IPSP 2015 IOBC/wprsn,Zagreb,Croatia 28-29/6/2015.]

EGYPT

Effect of magnetic field on metabolism and enzyme activity in some harmful insects. To investigate effect of magnetic field on the physiological aspects of some insects, larvae of three insects were reared in laboratory under 25 ±2°C and 70 ±5% RH in a suitable rearing boxes. The three insects were cotton leaf warm, *S. littoralis*, red palm weevil, *R. ferrugineus* and the greater wax moth, *Galleria mellonella*. Rearing insects started with a suitable larval instar. Numbers of larvae (form each insect) divided into 2 similar and equal groups, the first reared as a control (without magnetic field), while the second group was exposed to the magnetic field, (MF) along rearing periods. An appropriate numbers of larvae from the control and the treated ones were taken for Bio-chemical analysis and the

main parameters were recorded. The measured physiological parameters were: total protein, total carbohydrates, total lipids, inverses enzyme and alkaline phosphatase. Magnetic flux in around the center of the rearing plastic containers for the three insects were prepared and adjusted with similar magnates. Strength of the magnetic flux was measured using millitesta apparatus. It was recorded an average of 0.218, 2.487 and 8.629 ml.t. for the 3 insects respectively. Results showed that each of body weight and growth rate as well as the physiological aspects were affected with the magnetic field. Rate of growth was negatively affected as it decreased in cotton leaf worm and red palm weevil. Results also demonstrated that invertase enzyme decreased in the treated larvae of *S. littoralis* ans *G. mellonella* with 40.15% and 28.33% respectively lower than the control. In the same time, magnetic field led to increase the invertase enzyme in *R. ferrugineus* with 71.6% higher than the control samples. In spite of the strong magnetic flux around the larvae of *G. mellonella* their influence was limited. This may be due to the special behaviour of the worms as they of internal presence and entrance inside the rearing media for these larvae.[A.M. Hussein, A.E. Hatem, M.K. Abbas, Ghada E. Abdalla, K.E. Rady, Salwa S.M. Abdel- Samad and M.A. Eweis. (Egypt). Minufiya J. Agric. Res., 40(1): 999-1009, 2015]

Comparative Study of Biological and Chemical Control Programs of Certain Cucumber Pests in Greenhouses. A comparative study was carried out between biological and chemical control programs against cucumber pests in commercial greenhouses, at winter plantation of 2014-15 in Giza, Egypt. Aphids, whitefly and spider mites were the main target pests. In biological control greenhouse (BCG), twelve releases of three biocontrol agents were applied, according to the level of populations of target pests. The parasitoid **Aphidius colemani** Viereck was used against *Aphis gossypii* (Glov.), 2nd instar larvae of the predator *Chrysoperla carnea* (Steph.), against the aphid and the whitefly *Bemisia tabaci* L. and the predatory mite, *Phytoseiulus persimilis* Athias-Henriot against the two spotted mite (TSM) *Tetranychus urticae* Koch. In the chemical control greenhouse (PG), 22 applications of recommended pesticides were applied against the main target pests. Both the biological and chemical control measures were effective in suppressing aphid and whitefly populations. There was no significant difference between the population densities of the aphid and the whitefly in both greenhouses. The highest population of TSM in BCG attained 2.68 mites / inch^2 per leaf in 18th week. In PG, TSM increased dramatically from week 11 till the end of the season (28.29 mite/ inch^2 of leaf in week 24). TSM was controlled successfully using the predator *P. persimilis* but pesticides were not the effective method to control TSM in cucumber greenhouse as there was a significant difference between the population numbers of TSM in both greenhouses. About 40% significant difference was recorded between the yields; as it was (1781 Kg) in PG and (2493 Kg) in BCG. Highly population density of TSM in PG and using pesticides might play a significant role in reduction of the plant height and yield. Biological control can be considered as a recommended pest management practice in cucumber greenhouse at the winter plantation.[Dalia Adly.(Egyp).Egyptian Journal of Biological Pest Control, 25(3): 691-696, 2015].

Protease purification and characterization of a serine protease inhibitor from Egyptian varieties of soybean seeds and its efficacy against *Spodoptera littoralis*. Serine inhibitors have been described in many plant species and are universal throughout the plant kingdom. Trypsin inhibitors are the most common type. In the present study, trypsin and chymotrypsin inhibitory activity was detected in the seed flour extracts of four Egyptian varieties of soybean (*Glycine max*). The soybean variety, Giza 22, was found to have higher trypsin and chymotrypsin inhibitory potential compared to other tested soybean varieties. For this reason, Giza 22 was selected for further purification studies, which used ammonium sulphate fractionation and DEAE-Sephadex A-25 column. Soybean purified proteins showed a single band on SDS-PAGE corresponding to a molecular mass of 17.9 kDa. The purified inhibitor was stable at temperatures below 60°C and was active at a wide range of pH, from 2 to 12 pH. The kinetic analysis revealed a non-competitive type of inhibition against trypsin and chymotrypsin enzymes. The inhibitor constant (*K*i) values suggested that the inhibitor has higher affinity toward a trypsin enzyme than to a chymotrypsin enzyme. Purified inhibitor was found to have deep and negative effects on the mean larval weight, larval mortality, pupation, and mean pupal weight of *Spodoptera littoralis*. It may be concluded, that soybean protease inhibitor gene(s) could be potential targets for those future studies, which are concerned with developing insect resistant transgenic plants. [Ashraf Oukasha Abd El-latif. (Egypt). Journal of Plant Protection Research, 55(1): 16-25, 2015].

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IRAQ

Evaluating the virulence of *Metarhizium anisopliae* (Deuteromycotina:Hyphomycetes) and *Beauveria bassiana* (Ascomycota: Hypocreales) isolates to Arabian rhinoceros beetle, *Oryctes agamemnon arabicus*. Virulence of entomopathogenic fungi *Metarhizium anisopliae* and *Beauveria bassiana* were tested against Arabian Rhinoceros Beetle, *Oryctes agamemnon arabicus* larvae. Four concentrations (1×105, 1×107, 1×109 and 1×1011 conidia/mL–1) of two locally isolated entomopathogenic fungi spore suspensions were used in this study via larval direct spraying. Results revealed that both isolates can cause high mortality rate reaching 100% after 29 days. However, *Beauveria bassiana* scored higher mortality rate in short time especially at the concentration of 1×1011 conidia/ mL–1 with lethal time (LT)50 12.75 and LT90 20.00; while, *Metarhizium anisopliae* caused the higher percentage of malformed adults. Moreover, both isolates affected insect's life cycle particularly in the pupal stage which was reduced remarkably by almost 50% in comparison with the control treatment.[M.W. Khudhair, M.Z. Khalaf, H.F. Alrubeai, A.K. Shbar, B.S. Hamad, H.S. Khalaf**.** (Iraq). Journal of Entomological and Acarological Research, 47:5180, 2015].

Biological Control of Crown Rot Disease Caused By *Fusarium Graminearum* on Wheat In Iraq.The activity of biological agents and Raxil against *F. graminearum* in PDA showed that *Trichoderma viride* and *Penicillium polonicum* with antagonistic degree of 2 according to Bell scale. *Saccharomyces cerevisiae* and *Kluyveromyces marxianus* with the pathogen using dual and poisoning culture technique showed antagonistic percentage 20, 25.71 and 71.48, 70.55% respectively. *Pseudomonas aeruginosa* and *Azosperiilium brasilense* showed 41.90, 67.46 and 14.28, 76.48 and 8.57, 66.85% by using both dual and poisoning culture technique respectively. Disease incidence, disease severity, disease aggressiveness of *F. graminearum* and *F. pseudograminearum* were found to be 0.856, 100% and 5.67 respectively. The ability of *F. graminearum* and *F. pseudograminearum* to produce DON toxin on wheat-infected seedlings under greenhouse conditions was determined value and found between 0.002-0.807 µg/g. Biological control agents, *S. cerevisiae*, *K. marxianus*, *P. aeruginosa* and Raxil, significantly reduced disease severity, 0.002, 0.002, 0.003 and 0.001, disease incidence, 20, 20, 20 and 23.33%, pathogen aggressiveness, 0.05, 0.05, 0.05 and 0.02 compared with 0.011, 55% and 0.28 respectively under wood canopy. Biological control agents and Raxil caused a significant reduction in disease severity, disease incidence and aggressiveness index compared with pathogen treatment under field conditions. Raxil and *T. viride* caused the highest reduction in disease severity, 0.002 and 0.004 respectively, without significant different in disease incidence and aggressiveness index. Raxil caused the highest reduction in DON toxin production 0.036 µg/g without significant different with *A. brasilense* and *P.polonicum*, 0.037 and 0.038 µg/g respectively.[Oadi N. Matny and Mohammed H. Khalifah.(Iraq).The Iraqi Journal of Agricultural Sciences, 46(6): 984-997, 2015.]

IRAN

Two torymid species (Hymenoptera: Chalcidoidea, Torymidae) developing on *Artemisia* gall midges (Diptera: Cecidomyiidae). Two parasitoid wasps, *Torymus artemisiae* Mayr and *Torymoides violaceus* (Nikol'skaya), were reared on *Artemisia herba-alba* (Asteraceae) galles, in central Iran. *Torymus artemisiae* and *T. violaceus* were developed from the gall midges: *Rhopalomyia navasi* Tavares and *R. hispanica* Tavares, respectively. The occurrence of these two parasitic wasps in Iran, and their associations with *R. navasi* and *R. hispanica*, are new. Data on the wasps' biological associations and geographical distribution are provided. The parasitoid compositions of the genus *Rhopalomyia* (Diptera: Cecidomyiidae) were also discussed. [Hossein Lotfalizadeh, Abbas Mohammadi-Khoramabadi.(Iran). Journal of Plant Protection Research, 55 (4), 2015.]

Effect of some fungicides against the growth inhibition of *Sclerotinia sclerotiorum* mycelial compatibility groups. *Sclerotinia sclerotiorum* (Lib.) de Bary, the causal agent of Sclerotinia stem rot, is one of the most important pathogens of *Brassica napus* L. in northern Iran. In this study, 13 mycelial compatibility groups (MCGs) of the fungus were identified among 31 isolates sampled from four regions of Mazandaran province, Iran. Effective fungicides are useful in the integrated management of the disease. So, the effect of tebuconazole, propiconazole, cyproconazole, and Rovral-TS at five doses (0.0001, 0.001, 0.01, 0.1, and 1 ppm) was studied on the growth inhibition of *S. sclerotiorum* as *in vitro* tests. Maximum inhibition (100%) of *S. sclerotiorum* mycelial growth was obtained by the highest dose (1 ppm) of all tested fungicides, as well as by the doses of 0.1 and 0.01 ppm of propiconazole, cyproconazole, and tebuconazole. In this investigation, the reaction of *S. sclerotiorum* isolates belonging to different MCGs was evaluated against tebuconazole, propiconazole, cyproconazole, and Rovral-TS at their EC50 ranges. The results revealed that there was high variation of *S. sclerotiorum* MCGs against different

fungicides. The inhibition percentage varied between 4.29% and 71.72%.[Alireza Dalili, Saeed Bakhtiari, Hossein Barari, Majid Aldaghi.(Iran). Journal of Plant Protection Research, 55 (4), 2015.]

SAUDI ARABIA

How Far Can the Red Palm Weevil (Coleoptera: Curculionidae) Fly?: Computerized Flight Mill Studies With Field-Captured Weevils. Adult *Rhynchophorus ferrugineus* (Olivier) captured in pheromone-baited traps in commercial date palm orchards in the Al Ahsaa Directorate, Kingdom of Saudi Arabia, were used in computerized flight mill studies to determine the flight characteristics of this highly invasive and destructive palm pest. Flight mill studies were run at three different time periods, winter (December), spring (March), and summer (May). Of the 192 weevils tethered to flight mills _30% failed to fly>1 km. Of those weevils flying>1 km(n¼139), 55% flew>10 km, and of these flyers 5% flew>50 km in 24 h. Flying weevils exhibited an average weight loss of 20–30% and nonflying control weevils lost _9–13% body weight in 24 h. Male and female weevils flying in summer (average laboratory temperature was _27_C) flew the longest average distances (_25–35 km), exhibited highest weight reductions (_30%), and greatest mortality rates (_80%). Consequently, time of year not weevil sex or color morph had a consistent and significant effect on flight activity, weight loss, and survivorship rates. Flight activity was predominantly diurnal commencing around 5:00 a.m. and peaking between 9–11:00 a.m. before tapering off. The distribution of flight distances combined across season and sex was mesokurtic (i.e., normally distributed). [M. S. Hoddle, C. D. Hoddle, J. R. Faleiro,H. A. F. El-Shafie, D. R. Jeske, And A. A. Sallam.(Saudi Arabia). Journal of Economic Entomology, 108(6), 2015].

Diversity and composition of ground-dwelling beetle assemblages (Insecta: Coleoptera) in Rawdhat Khorim National Park, Kingdom of Saudi Arabia. Rawdhats are unique alluvial meadows that provide a major opportunity for conservation of biodiversity in the Arabian hyper-arid regions. Riyadh Region, in central Saudi Arabia, is renowned for its spread Rawdhats that are characterized by variation in the diversity and density of their vegetation cover, which is consequently reflected on the fauna. This study investigated the diversity and composition of the ground dwelling beetle assemblages in two locations within Rawdhat Khorim National Park, Saudi Arabia. Beetles were collected during 24-periods from November 2011 to October 2012 using pitfall traps. A total of 114 species, 96 genera and 22 families were identified. Four Tenebrionidae dominated the catch, Mesostena puncticollis Solier, Oxycara saudarabica Kaszab, Gonocephalum prolixum (Erichson) and Apentanodes arabicus (Kirchsberg). Although richness and abundance did not differ significantly between the locations, diversity and evenness were different. The beetle family abundance showed variations between the locations. Non-metric multidimensional scaling (NMDS) and the analysis of similarity (ANOSIM) showed a high dissimilarity degree in species composition. Scavengers occurred in higher abundance and richness in one location. Predators and herbivores occurred in higher abundances in the other location. This study suggests that scavengers can be used for monitoring the ecology integrity in xeric-lands. It revealed the difficulty of interpreting richness and diversity measures without a high species identification level and knowledge about feeding guilds. Our findings will assist in monitoring approaches for conservation of natural habitats in arid lands. [Hathal M. Aldhafer a, Mahmoud S. Abdel-Dayem, Yousif N. Aldryhim, Hassan H. Fadl, Ashraf M. El-Torkey, Ali A. Elgharbawy, Haris Setyaningrum. Journal of Arid Environments, 127: 187–191, 2016].

Resistance/susceptibility of faba bean to *botrytis fabae*: the causal agent of chocolate spot with respect to leaf position. Plants have evolved different defense mechanisms to combat pathogen attacks. In this study, detached leaf assays were conducted to estimate the influence of leaf position (leaf age) on the development of chocolate spot disease, caused by *Botrytis fabae*, in the lower, middle and upper leaves of five faba bean (FB) cultivars with different levels of resistance/susceptibility.Two components of resistance in terms of lesion diameter and spores per lesion were used to evaluate the disease intensity. To evaluate plant defense response, oxidative burst and phenol-oxidizing enzymes were assayed. The results indicated that regardless of the resistance level of the FB cultivar, lower (older) leaves were more severely infected by the chocolate spot pathogen than upper (younger) ones. A comparison of the defense-response behavior of the FB leaves revealed that the chocolate spot pathogen induced lipid peroxidation and the production of reactive oxygen species, peroxidase, and polyphenoloxidase in leaf tissue during the FB-*B. fabae* interaction. The production of these defense compounds in leaves was not static but governed in time and extent by physiological maturity. Younger leaves exhibited significantly higher oxidizing enzymeactivity and lower oxidative stress than older ones. These variations in the levels of defense compounds could explain the differences in leaf resistance. The extreme differences in disease development recorded in upper and lower leaves of all FB cultivars suggest that assessing resistance using leaves from the middle positions would be the most efficient and reliable for

evaluating the resistance/susceptibility of FB plants to *B. fabae*. [Mahmoud, H. El-Komy, Amgad A. Saleh and Younes Y. Molan. (Saudi Arabia). International Journal of Agriculture & Biology, 17 (4): 691–701, 2015]

Daily flight activity patterns of the red palm weevil (Coleoptera: Curculionidae) as monitored by smart traps. The red palm weevil, *Rhynchophorus ferrugineus* (Olivier) (Coleoptera: Curculionidae), is a serious pest of palm in many subtropical and tropical regions of the world. Traps baited with aggregation pheromones are important management tools used to control this weevil. The daily flight activity patterns of the red palm weevil in Saudi Arabian date palm orchards were observed using smart traps (STs) with a catch period of 3 h (8 periods daily). Conventional bucket traps (CTs) were used for comparison. The capture efficiency of the STs was not significantly different from that of the CTs. A circular statistics analysis showed that the time of adult capture in the STs was nonrandom and indicated mainly diurnal activity; few adults were captured at night. The STs revealed differential activity between the sexes. The female activity pattern exhibited 2 strong peaks at 7 to 9 AM and 4 to 7 PM, and the 2nd peak was significantly higher than the 1st peak. The male activity pattern showed 3 peaks at 7 to 10 AM, 1 to 4 PM, and 4 to 7 PM with no significant differences among the peaks. Males initiated activity before the females. The number of adults captured by STs was positively correlated with the time of sunrise and wind velocity, negatively correlated with the time of sunset and the ambient temperature, and not significantly correlated with the relative humidity. Although these patterns were consistent during the study period, they differed from a variety of other patterns reported in European and Southern Asian environments, which suggests that R. ferrugineus has evolved considerable behavioral flexibility in coping with harsh environmental conditions typical of hot arid date production areas in Saudi Arabia. Knowledge of R. ferrugineus daily activity patterns in local field environments can help managers optimize the timing of pesticide applications and other control activities. [Yousif N. Aldryhim and Hassan Y. Al Ayedh.(Saudi Arabia). Florida Entomologist, 98: 1019-1024, 2015].

Acoustic Detection of *Rhynchophorus ferrugineus* (Coleoptera: Dryophthoridae) and *Oryctes elegans* (Coleoptera: Scarabaeidae) in *Phoenix dactylifera* (Arecales: Arecacae) Trees and Offshoots in Saudi Arabian Orchards. *Rhynchophorus ferrugineus* (Olivier) (Coleoptera: Dryophthoridae) larvae are cryptic, internal tissue-feeding pests of palm trees that are difficult to detect; consequently, infestations may remain hidden until they are widespread in an orchard. Infested trees and propagable offshoots that develop from axillary buds on the trunk frequently are transported inadvertently to previously uninfested areas. Acoustic methods can be used for scouting and early detection of *R. ferrugineus*, but until now have not been tested on multiple trees and offshoots in commercial date palm orchard environments. For this report, the acoustic detectability of *R. ferrugineus* was assessed in Saudi Arabian date palm orchards in the presence of commonly occurring wind, bird noise, machinery noise, and nontarget insects. Signal analyses were developed to detect R. ferrugineus and another insect pest, *Oryctes elegans* Prell (Coleoptera: Scarabaeidae), frequently co-occurring in the orchards, and discriminate both from background noise. In addition, it was possible to distinguish *R. ferrugineus* from *O. elegans* in offshoots by differences in the temporal patterns of their sound impulses. As has been observed often with other insect pests, populations of the two species appeared clumped rather than uniform or random. The results are discussed in relation to development of automated methods that could assist orchard managers in quickly identifying infested trees and offshoots so that *R. ferrugineus* infestations can be targeted and the likelihood of transferring infested offshoots to uninfested areas can be reduced.[R.W. Mankin, H. Y. Al-Ayedh, Y. Aldryhim, and B. Rohde. (Saudi Arabia). Journal of Economic Entomology, 1–7, 2016.]

SYRIA

The first registration of the *Physiphora alceae* Preyssler, 1791 (Diptera: Ulidiida) in Syria 2014. The cosmopolitan *Physiphora alceae* (Preyssler) Natural populations of these wasps have been found in the fields of *Sorghum bicolor* L. in Damascus. Distibution. Europe, Iraq, Iran, .Egypt, India, China, Japan, Africa, North and South America, Occupied Palestine. Larvae of *P. alceae* feed on decaying plant and animal material and excrements, and in Egypt were recorded only from slaughter houses. Body length 3.2–5.5 mm, wing length 2.8–4.5 mm. head mostly orange-brown. Occiput mainly black. Ocellar triangle black. Frons reddish-brown. First flagellomere orange; arista orange to brown, bare. Palpus orange to black. all setae black. Eye with colored striped appearance. Thorax mostly metallic green, sometimes with violet shade except scutellum shiny golden-gray. Legs: All femora and tibiae brown to black; fore tarsus with 4 apical tarsomeres black, basal tarsomere pale yellow apically black; mid and hind tarsi entirely or with 1–4 basal tarsomeres yellow. Wing with pulvilli claws and veins yellow to orange. with a closed a subapical cell, without a "vena spuria ,unbroken costa. Abdomen: Shiny black with blue-green shade. Tergites 1–4 smooth, tergite 5 densely shagreened. tergite 5 with microscopic setulae on posterior half and with setulae as long

as those on tergite 1 and 6 posteriorly; remaining parts bare.[Abdulnabi Basheer, Alaa Saleh, (Syria). Biological control studies and Research Center, 2014.]

Environmental Distribution, Frequency and Toxicity of Bacillus thuringiensis in Syria. *Bacillus thuringiensis* is distinguished by its production of proteinaceous parasporal inclusion bodies during sporulation, which when ingested by susceptible insects, are activated in the midgut into toxins. *B. thuringiensis* can be isolated from numerous sources; however, there has been no recorded isolation of *B. thuringiensis* strains from Syria. Therefore, this study aimed at investigating the distribution, frequency and toxicity of *B. thuringiensis* isolated from different ecosystems in Syria. [M. Meihiar, M. Ahmad, F. Al-Zyoud and K. Amer (Syria). Meihiar et al.; ARRB,5(2):xxx-xxx, Article no. ARRB. 2015.019. www.sciencedomain.org. 2015].

Ecological and Biological Studies of Some Species of Scarabaeidae and Life Cycle of *Phyllognathus excavatus* Forster in Damascus Countryside, Syria. This study was conducted in 2008 and 2009 in two areas of Damascus countryside to investigate the flight activity of Scarabaeidae adults, and life cycle of *Phyllognathus excavates*. Differences were found in adults emergence among the subfamilies, species which overwinter as adults in the pupal mud cell emerged in spring and early summer, as Cetoniinae, Aphodiinae, Scarabaeinae and Dynastinae (March to May and June), species which overwinters as matured larvae emerged late in summer as Melolonthinae (first June to first August). The life cycle of *P. excavatus* lasted for two years. Adult's flight was recorded from April to early August with a peak in May. This species overwinters as third instar larvae in the first year and as adults in the pupal cell in the second year. Adults lay their eggs in the dung piles.[Sumer Akram Al-Ali, M. Zouhair Mohmalji, Louai Hafez Aslan.(Syria), Jordan Journal of Agricultural Sciences, 11(4), 2015.]

TUNIS

Improvement of the Production of Entomopathogenic Proteases of *Bacillus thuringiensis* . *Bacillus thuringiensis* (Bt) is a spore forming bacterium that produces an insecticidal crystalline protein (ICP) making it a successful biopesticide. The ICPs are also referred to as Cry proteins and contain delta-endotoxins which cause mortality of insects belonging to different orders such as Diptera, Coleoptera and Lepidoptera. Bt subspecies produce also proteases which affect their entomotoxicity toward targeted insects as proteolytic activities are strongly associated with Bt crystal protein. Statistical techniques were applied to optimize the fermentation medium composition for the production of bacterial proteases in shake-flask cultures. An experimental statistical design was performed to evaluate the effects of different components on the concentration of proteolytic enzymes. Preliminary results showed that starch and K2HPO4 are able to increase *Bacillus* sp. Protease production. In order to obtain more accurate results, interactions between ingredients were also studied. In concordance with coefficient of determination (R^2) value, considered as the most important criterion for predictive model success, the best model demonstrated the effect of interactions and allowed precise prediction of protease production. In fact, K2HPO4, KH2PO4, MgSO4, FeSO4 as well as Soybean meal × starch and MnSO4 × starch interactions were shown to have active action on protease production. This method revealed that limited number of experiments allowed useful results.[Karim Ennouri,Rayda Ben Ayed, Hanen Ben Hassen, Hichem Azzouz and Mohamed Ali Triki. (Tunis).Tunisian Journal of Plant Protection, 10: 95-103, 2015].

Comparison between Insecticide Effects of Wild and Cultivated Rosemary Essential Oils on Stored Product Insects. This study was conducted to evaluate the insecticidal potential of *Rosmarinus officinalis* essential oils (wild and cultivated plants) against two stored product insects i.e. *Tribolium castaneum* and *Trogoderma granarium*. GC-MS analyses showed that both essential oils contain 4 major constituents which are L-camphor, 1,8-cinerole, L borneol, and bornyl acetate. Fumigant toxicity tests showed that the two rosemary essential oils were more toxic to *T.granarium* than to *T.castaneum* adults. The corresponding LC50 values of wild and cultivated rosemary essential oils against *T. castaneum* were 65.5 µl/l air and 180 µl/l air, respectively, in contrast to 19.75 µl/l air and 18.75 µl/l air recorded towards *T. granarium* adults. Pest repellent activity was found to be dependent upon essential oil concentration and exposure time. The essential oil from wild rosemary plants was more repulsive against adults of *T. castaneum* than that from cultivated ones. Applied at the dose 0.25 µl/cm2, repellency achieved was of about 65 and 45% after 120 min of exposure to essential oils from wild and cultivated rosemary, respectively. These results suggested that *R. officinalis* essential oils may be potentially active in controlling the two stored product insects. [Sabrine Khalil, Khaoula Zarrad, Amel Ben Hammouda, Yasmine Ayed- Lakhal, Safa Rguez, Wafa Tayeb, Asma Laarif, and Ikbal Chaieb.(Tunis). Tunisian Journal of Plant Protection, 10: 105-115, 2015]

Valorization of three plant species of arid areas in biological control of the desert locust *Schistocerca gregaria.* The present work aims to evaluate the *in vitro* biocide effect of aqueous and ethanol extracts of plants collected from arid Algerian Sahara i.e. *Calotropis procera*, *Schouwia purpurea*, and *Zizyphus lotus* on the fifth larval instar (L5) of *Schistocerca gregaria*. These extracts obtained by decoction and solvent were tested respectively crude for the first one and at concentrations of 12.5% and 50% for the second one by contact and by ingestion. Significant mortality was recorded the fifth day after treatments, using ethanol at 50% by ingestion (52.5%) and crude aqueous *C. procera* extracts (45%) when applied by contact and ingestion and with *S. purpurea* ethanol extracts at 50% when used by contact (47%). Morphological changes and molting inhibition were detected following treatment by contact and ingestion while antifeeding effects and structural changes of L5 larvae mesenteron were observed for ingestion mode. In contrast, negligible mortality rates, similar to those of the untreated control and no changes affecting the behavior or L5 larval mesenteron structure were recorded using ethanol and aqueous extracts from *Z. lotus* according to the two application modes. Thus, the ethanol extract of *C. Procera* exhibited *in vitro* acridicide potential toward *S. gregaria* L5 larvae. It would be interesting to test this extract under semi-natural and natural environments and to identify the active ingredients responsible for the biocontrol of desert locusts.[Messgo -Moumene, S., Merzouk, D.E., Houmani, Z., and Moumene, K.(Tunis).Tunisian Journal of Plant Protection, 10: 117-130, 2015].

Comparison of four trapping systems for the control of the Medfly *Ceratitis capitata*. Among the alternative methods to control the Mediterranean fruit fly (Medfly), the mass trapping inserted in an IPM program, is promising. The purpose of this study is to compare 4 mass trapping systems to control the Medfly. Two trials were conducted in 2011/12 and 2014/15 in a Citrus organic orchard: Moskisan® baited with Biolure®, Flycap® baited with Ferag® CC D TM and dichlorvos insecticide, Cera Trap® containing a protein solution and Conetrap® with a dry-food-bait and cypermethrin. For each system, the total captures of 4 to 6 traps were weekly checked over all the Citrus season. The analysis of their contents allowed assessing the total of captured flies, the percentage of female Medflies and non-target arthropods. The results showed that the Conetrap® system has the best Medfly captures, the highest percentage of females captured (78%) as well as the highest selectivity towards the non-target arthropods (<10%). Regarding their cost per ha, the mass trapping using this system at 40 traps/ha, is the cheapest with approximately 250 TD/ha. Its persistence is comparable to Moskisan® and Flycap® systems covering the entire season. Concerning their ease of handling, all systems are comparable, but the Conetrap® is the best one because of its low weight and it does not take much space at transportation. All these factors make the Conetrap® system the most interesting for the Medfly mass trapping, especially that its recommended density per ha could be reduced. However, its effectiveness to protect fruits should be demonstrated especially at high Medfly densities as well as and its resistance in hard climatic conditions to precise its possibility of reuse next years.[Tlemsani, M. and Boulahia-Kheder, S.(Tunis).Tunisian Journal of Plant Protection, 10: 131-140, 2015].

A contribution to the knowledge of *Platypus cylindrus* in Tunisian cork oak stands. *Platypus cylindrus* is the most important wood borer of cork oak trees (*Quercus suber*) in the Mediterranean Basin and namely Morocco, Algeria and Portugal where its presence has drastically increased in the past few decades. However, in Tunisia the insect does not cause relevant damages. The aim of this study was to determine the status of the insect in Tunisia and to understand the relationship between the beetle and its host plant, in order to establish a preventive control plan. During 2011, three sites were visited in the area of North-West of Tunisia, the most covered region with cork oak forests. Fifty trees were randomly sampled in each stand and their dendrometric and phytosanitary variables were recorded. The cork exploitation was also characterized by the observation of the debarking height and number of wounds caused by this practice. The intensity of attack by *P. cylindrus* was assessed using the parameter number of holes per tree. The analysis of the results showed that the insect presence is more related to the debarking parameters than to dendrometric and phytosanitary traits. The results of the present study may be useful to target *P. cylindrus* monitoring and to advise technical staff to improve the commonly used procedures for debarking cork oak trees.[Bellahirech, A., Bonifácio, L., Inácio, M.L., Sousa, E., and Ben Jamâa, M.L.(Tunis). Tunisian Journal of Plant Protection, 10: 141-150, 2015].

Efficacy of diatomaceous earth based formulation on date moth *Ectomyelois ceratoniae.* The ovicidal potential of a diatomaceous earth based formulation Protect-it® was assessed against eggs of the date moth *Ectomyelois ceratoniae*. Three doses were tested: 50, 100 and 200 mg/kg. Hatching data showed a high sensitivity of the date moth eggs to the diatomaceous earth based formulation and a clear dose-response relationship was observed. For the doses 50, 100 and 200 mg/kg, the respective egg hatching rates were 25, 16 and 3% against 83.33% for the control. Moreover, the percentages of emergence of adults coming from treated eggs were respectively 2, 10 and 20% for the doses 200, 100 and 50 mg/kg against 73.32% for the control. Additionally, results indicated that the diatomaceous

earth based formulation exhibited an ovicidal toxicity with corresponding LD50 and LD95 values of 0.019 and 1.307 mg/kg, respectively. This work clearly indicates the interest in the use of diatomaceous earth and its formulations as an alternative for controlling stored date pests.[Yousfi, S. and Mediouni-Ben Jemâa, J. (Tunis).Tunisian Journal of Plant Protection 10: 151-156.2015].

PLANT PROTECTION NEWS IN THE ARAB COUNTRIES AND NEAR EAST

Postgraduate Arab Students Activities (Master Thesis)

Taxonomy and Zoogeography of the tribe Lebiini (Coleoptera: Carabidae) in the Southwestern Saudi Arabia. The Lebiini is a diverse tribe of beetles of the subfamily Harpalinae (Carabidae: Coleoptera) with about 891 described species in 86 genera and 17 subtribes are known from the Palaearctic region. A taxonomic review of the tribe Lebiini in the Southwestern Saudi Arabia was conducted during this study. Field collection was conducted in three provinces (Al Baha, Asir, and Jazan) using light traps, pitfall traps, hand picking, and sweeping nets. The collected materials, the specimens preserved in the King Saud University Museum of Arthropods (KSMA), and the type materials borrowed from Natural History Museum of Bern, Switzerland (NHMB) and British Natural History Museum London (BMNH) were used for this taxonomic review. Species were also sent to Centre de Biodiversité Musée Naturalis Leiden the Netherlands for final confirmation. Different diagnostic structural features were photographed using Auto montage (LEICA MZ 125). The diversity and zoogeography of Lebiini fauna in the Southwestern Saudi Arabia were analyzed. A total of 2,253 specimens were examined and 34 species are recognized in 19 genera and five subtribes. Five of them are described as new to science: *Afrotarus saudicus* sp. n., *A. soudensis* sp. n., *Dromius arabicus* sp. n., *Lebia raseeae* sp. n, and *Metadromius nigrocapitatuss* sp. n. Nine species are new country records. The genera of *Tillis* Chaudoir, 1876, and *Paraglycia* Bedel, 1904 are recorded from Saudi Arabia, where this genera had not been known previously. Taxonomic keys to subtribes, genera and species are provided, along with habitus and key characters illustrations for the species. Faunal distribution maps and locality records for all species are provided. Chorotype and ecological information are included for each species. The Lebiini fauna in the studied area includes 34 species belonging to nine zoogeographical chorotypes, combined in five main zoogeographical complex. The general affinity of the Southwestern Saudi Arabia Lebiini fauna is dominated by the species of Afrotropical complex (38.2.6% of all species). Affinity of the fauna to the Mediterranean complex is demonstrated by the presence of three species only. The Arabian complex comprises species endemic or distributed in Arabian Peninsula and it is the second largest group (32.4%). Within it, the Saudi Arabian endemic species are dominated (72.7%). In a zoogeographical respect, there are four main routes of Lebiini colonization in Southwestern Saudi Arabia: Afrotropical (especially East Africa), Arabian (mainly endemic), Mediterranean, and West Palaearctic. From the species altitudinal geographical point of view the 34 species are placed into six groups: species present along the entire altitudinal gradient (6 species); species present at high altitude (one species; species occurring at mid altitude (10); species present at low-mid altitude (9 species); species present at mid-high altitude (1 species) and species occurring at low altitude (7 species). [**Iftekhar Rasool. Advisors committee: Prof. Hathal Bin Muhammad Al Dhafer and Prof. Mahmoud Saleh Abdel-Dayem.** Plant Protection Department, College of Food and Agricultural Sciences, King Saud University, Saudi Arabia. **(Master Thesis 2015)**].

Aphids (Hemiptera: Aphidoidea) of Al Baha Province. A comprehensive survey study of aphid species and their plant hosts was carried-out in Al Bahah Province. The province was visited eight times from 5 March 2013 to 17 August 2014, where three hundred and seventy samples of aphids were collected using beating sheets and yellow water pan traps. Fifty-four aphid species representing 30 genera belonging to four families were recorded. The four families were Aphididae (49 species), Drepanosiphidae (one species), Lachnidae (one species), and Pemphigidae (three species). Six new country records genera of Aphididae and 16 species were reported in this survey. The general morphology was provided for Al Bahah species with an identification key to species level. The most common aphid species, based on the number of collected samples, were: *Macrosiphum euphorbiae* (Thomas, 1878) (66 samples), *Brachycaudus rumexicolens* (Patch, 1917) (24 samples), *Uroleucon sonchi* (Linnaeus, 1767) (23 samples), *Brachycaudus helichrysi* (Kaltenbach, 1843) (22 samples), and *Myzus persicae* (Sulzer, 1776) (20 samples). The widest range of plant hosts were found for *M. euphorbiae* (39 plant species), followed by *B. helichrysi* (12 plant species), *M. persicae* (12 plant species), *B. rumexicolens* (10 plant species), *Hystoneura setariae* (Thomas, 1878) (9 plant species) and *U. sonchi* (9 plant species). The number of host plants for aphids recorded in this study were 101 species, representing 82 genera of 27 botanical families. Seventy-three aphid host plant species were new records for Saudi aphid fauna. The most common host plant species were belonging to the plant families: Asteraceae, Poaceae,

Chenopodiaceae, Solanaceae, Fabaceae and Polygonaceae. The number of aphid species per plant host species ranged from 1-6 species. *Sonchus oleraceus* was infested by six aphid species. This study indicated that Al Bahah Province has a relatively rich aphid diversity due to the relatively high plant diversity in a favorable climatic condition. Further survey studies of aphid species in Saudi Arabia are still needed to identify the newly invasive pests of these insects. **[Saber Hussain. Advisors committee: Prof. Yousif N. Aldryhim.** Plant Protection Department, College of Food and Agricultural Sciences, King Saud University, Saudi Arabia, **(Master Thesis 2015)**].

PHD Dissertations

1. **Studying the possibility of wheat covered smut disease control caused by *Tilletia spp* by using some biological and chemical agents and characterizing the genetic variation of its isolates in Iraq.** Sattar Aziz Shams-Allah. (2015, Doctorate). Plant Protection Department, College of Agriculture, University of Baghdad**,** Iraq.
2. **Biological and physiological effects of the extracts of fruits black pepper *Piper nigrum* on cotton leaf worm *Spodoptera littoralis* (Boisd.) (Lepidoptera:Noctuidae).** Hind Ibrahim Ali Al-Khazraji. (2015, Doctorate). Plant Protection Department, College of Agriculture, University of Baghdad, Iraq.

❖ Some Plant Protection Activities of FAO and Other Organizations

DESERT LOCUST SITUATION

Situation level: Caution

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

Desert Locust breeding continued during February in northern Mauritania and in adjacent areas of Western Sahara where locusts formed small groups. Ground control operations increased in both areas. Although breeding is likely to continue during the forecast period and cause a further increase in locust numbers and the formation of hopper and adult groups, the situation is expected to remain under control. As temperatures increase, low to moderate numbers of adults could move to spring breeding areas south of the Atlas Mountains in Morocco and Algeria and breed if rainfall occurs. Low numbers of locusts continued to persist in parts of the winter breeding areas along both sides of the Red Sea in Sudan, Saudi Arabia and Yemen. Breeding will decline in these areas. The situation remained calm in southwest Asia. Small-scale breeding is likely to occur in parts of southeastern Iran.

Western Region. Breeding continued during February in northern Mauritania and in parts of the Western Sahara in southern Morocco, causing small groups of hoppers and adults to form in some places. Ground control operations increased in Morocco (3,345 ha) and Mauritania (1,295 ha). Despite a lack of rainfall, ecological conditions remain favourable for breeding from good rains last autumn. Consequently, locust numbers are likely to increase further and small groups and perhaps a few hopper bands may form in some areas during the forecast period. As temperatures increase, low to moderate numbers of adults may appear along the southern side of the Atlas Mountains in Algeria and Morocco, and breed if rainfall occurs. Elsewhere, the situation remained calm. Low numbers of solitarious hoppers and adults persisted in Tamesna, Niger and there were unconfirmed reports of immature solitarious adults in northern Mali.

Central Region. The situation remained calm during February due to generally poor rainfall and ecological conditions in the winter breeding areas along both sides of the Red Sea and Gulf of Aden. Consequently, only low numbers of solitarious adults were maturing in a few places on the coast in Sudan, Saudi Arabia and Yemen. Unless further rain falls, breeding will decline and end during the forecast period. The situation remains less clear

in the interior of southern Yemen where ecological conditions are expected to be favourable as a result of two cyclones in November. There is a low risk that locusts may be present and breeding. If so, adult groups could form as vegetation dries out and move towards Oman.

Eastern Region. The situation remained calm during February. No locusts were reported in the region. Low numbers of adults are likely to appear in southeast Iran and perhaps southwest Pakistan. Small-scale breeding is likely to occur in the Jaz Murian Basin of Iran in areas of recent rainfall.

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(CRC), (FAO Regional Office for Near East, Cairo, Egypt http://desertlocust-crc.org).

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

International Workshop on *Xylella fastidiosa* and the Olive Quick Decline Syndrome (OQDS) 19-22 April 2016, Bari, Italy.

1. BACKGROUND

The bacterium *Xylella fastidiosa* is a devastating pathogen, which affects more than 300 plant hosts belonging to crop, ornamental, forestry and natural vegetation species. Among them *Citrus*, grapes, almonds and olive are of main importance in the Near East and North Africa region. Following the outbreaks of *X. fastidiosa* associated to the olive quick decline syndrome (OQDS) in Apulia (Italy), the National Plant Protections Organizations of the North-African and Near East countries have strongly expressed their concern and the need to get further information and training on *Xylella fastidiosa* and the quick decline syndrome of olive to be able to prevent the introduction and spread of this pest.

As a result, a first workshop is organized to share updated information on the syndrome and train NPPOs on *Xylella fastidiosa* and related vectors, and on aspects as surveillance, diagnostic and control methods.

The Food and Agriculture Organization **(FAO),** the International Plant Protection Convention **(IPPC)** as well as the Near-East Plant Protection Organization (**NEPPO**), the European Plant Protection Organization (**EPPO**), the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM) Mediterranean Agronomic Institute of Bari (**MAIB**) and the
CIHEAM-IAM Bari and Consiglio Nazionale Delle Ricerche **(CNR)**- Bari are joining forces to organize a workshop to share updated information on the disease and train NPPOs on this pathogen and relative vectors, and on surveillance, diagnostic and control methods.

2. ORGANIZATION OF THE WORKSHOP

Organizers: FAO (Near East and North Africa Regional Office), the IPPC as well as NEPPO, EPPO, CIHEAM-IAM Bari and CNR-Bari are joining forces to organize this workshop.

Location: The workshop will be held at the CIHEAM facilities in Bari. Participants will be able to see the symptoms and impacts of this bacterium in the field, and to be trained on surveillance (quick decline syndrome and vectors), diagnostic methods and control measures.
Target audience: NPPO staff and researchers specifically working on *X. fastidiosa* and the quick decline syndrome of olive. About 60 participants are expected from all over the Mediterranean basin.

3. TENTATIVE PROGRAMME OF THE WORKSHOP

Tuesday 19th of April
Morning
Session 1: Opening; general presentations on the pathogen and relative vectors and disease impact; the Apulian outbreak; the state of the research.
Afternoon
Session 2: PRAs and existing projects (EUPHRESCO, FAO, etc.)

Wednesday 20th of April
Morning
Session 3: Legal aspects, presentation of the EC legislation, presentation of other countries legislations and implications for trade. Discussion on contingency measures with experts.
Afternoon
Session 4: Surveillance and control methods.

Thursday 21st of April
Field trip dedicated to field observations and sampling procedures.

Friday 22nd of April
Morning
Demonstration of diagnostic assays
Afternoon
Session 5: Communication aspects on *Xylella fastidiosa* and the Olive quick decline syndrome (OQDS), as well as on pests in general.

There is no registration fee but participants will cover their meals and transportation while on the spot.
Pre-registration are open until the 31st of March. To register please visit the link https://ippc.wufoo.com/forms/international-workshop-on-xylella-fastidiosa/

Call for abstracts is open until the 15th of March. To submit an abstract please visit the link https://ippc.wufoo.com/forms/call-for-abstract-xylella-fastidiosa-workshop/

PHYTOSANITARY TERMS DEFINITION

Phytosanitary terms for issue # 67
Pest: Any species, strain or biotype of plant, animal or pathogenic agent injurious to plants or plant products. Note: In the IPPC, plant pest is sometimes used for the term pest [FAO, 1990; revised FAO, 1995; IPPC, 1997; revised CPM, 2012]
Surveillance: An official process, which collects and records data on pest presence or absence by survey, monitoring or other procedures [CEPM, 1996; revised CPM, 2015]
Survey: An official procedure conducted over a defined period to determine the characteristics of a pest population or to determine which species are present in an area [FAO, 1990; revised CEPM, 1996; revised CPM, 2015]

ARAB SOCIETY FOR PLANT PROTECTION NEWS

A new dedicated website for the Arab Journal of Plant Protection

Starting in January 1, 2016, a dedicated website for the Arab Journal of Plant Protection was launched. All society members and others are invited to visit the site www.ajpp.asplantprotection.org, and the journal editorial board welcomes any comments that aims to improve the site and makes it more user friendly. This step was implemented in response to the request of a variety of international scientific journals indexing institutions. At present, the Arab Journal of Plant Protection is indexed by the Arab Impact Factor in Egypt and received an impact factor (IF) in 2015 of 1.6, and also by the Scientific Indexing services (SIS), USA, and received an IF for 2015 of 0.832. The journal is now also being indexed by SCOPUS ELSEVIR, The Netherlands, and by the Institute for Information Resources-Global Impact Factor, Australia. The Arab Society for Plant protection aims from this multi-institutional indexing to establish its excellence status among respected scientific journals in the region and globally.

FIRST ANNOUNCEMENT: 12th Arab Congress of Plant Protection. ACPP 2017 5–9 November 2017, CAIRO EGYPT-. "Towards Future Secure Agricultural Production"

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

Congress Topics

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

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

Registration Fees:

Participation Type	**Egyptians (L.E.)**		**Non-Egyptians (US $)**	
	Early Bird **(up to 31 Dec. 2016)**	Late Bird **(from 1st Jan. 2017)**	Early Bird **(up to 31 Dec. 2016)**	Late Bird **(from 1st Jan. 2017)**
Researchers (with one abstract):				
• **ASPP members**	1000	1200	175	200
• **Non-members**	1200	1400	200	225
Publication fees (for each additional abstract)	250	450	50	75
Graduate Students	600	800	150	175
Attendance only:				
• **ASPP members**	800	1000	150	175
• **Non-members**	900	1100	160	185
Accompanying persons (without congress publications)	800	1000	150	175

- The registration fee covers participation in the congress, the conference publications, and a set of food coupons for coffee breaks and lunches (5-9 November 2017).
- Graduate students, applying for registration, should present a certificate in support of their current studentship status from their college/university/institution.

Important Dates

Registration	**30th January, 2016**
Last date for submission of abstracts	1st November, 2016
Second Announcement with accommodation and other details	1st January 2017
Announcement regarding acceptance of abstracts	1st February, 2017
Last date for full paper submission (optional)	30th April, 2017
Last date for submitting accommodation request (hotels)	30th September, 2017

Contacts

ACPP2017 Secretariat: Please contact us if you have any question or suggestion via:
Post Address: 7 Nadi El-Said Street, Dokki, Giza, Egypt
E-mail: acpp2017@arc.sci.eg- **Phone/ Fax: +202-33372193, Mobile**: **+201274998314**

acpp2017

Website **www.acpp2017.sci.eg**

Congress Board

Prof. Dr. Abdel Monem El-Banna	Congress Chairman
Prof. Dr. Ibrahim H. Al-Abassi	CongressVice-chairman
Prof. Dr. Mortada A. Essa	Congress Manager
Prof. Dr. Mohamed E. El-Zemaity	President of ASPP

Registration Guidelines:

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

GENERAL NEWS

ICARDA Staff in Lebanon Celebrate International Year of Pulses with Feast at Terbol Station .Jan 18, 2016.

More than 50 ICARDA staff in Lebanon marked the inauguration of the International Year of Pulses with a feast at Terbol Research Station, about 70km from Beirut. The 2016 International Year of Pulses (IYP) was officially launched by the United Nations Food and Agriculture Organization (FAO) in an inaugural ceremony in Rome, last November where Dr. Mahmoud Solh, ICARDA's Director General emphasized that pulses fit in many of the prevailing cropping systems and they need to be mainstreamed in cereal-based agricultural systems, particularly where soil health is a serious issue.

"This pulses feast was a good opportunity to bring the staff together," said Dr. Hassan Machlab, ICARDA Country Director in Lebanon. The event at Terbol station was organized by ICARDA staff, who prepared more than 20 different dishes with pulses as the main ingredient (chickpeas, lentils, faba beans, beans, cowpeas and mung beans) and using ICARDA's varieties. Pulses, with the unique ability of nitrogen-fixation needed for fertile soils, play a critical role in dry areas for sustainable food production systems and are, therefore an integral part of ICARDA's strategy for food security and better livelihoods in dry areas. As part of its mandate, ICARDA contributes to the improvement of lentil, faba bean, chickpea, and grasspea productivity. Pulses are also a vital source of plant-based proteins and amino acids for people and integral part of daily diet in North Africa and West and South Asia where ICARDA operates. See more at:
http://www.icarda.org/update/icarda-staff-lebanon-celebrate-international-year-pulses-feast-terbol-station#sthash.lzvzch6I.dpuf

Protecting crops from nematodes using 'peptide mimics' technology.

A new technology developed by researchers at Queen's University Belfast, Northern Ireland, has the potential to reduce crop losses across the developing world and boost the incomes of subsistence farmers. The technology is designed to combat parasitic 'nematodes', which infect crop plants and are responsible for a 12.3% reduction in global agricultural productivity, a loss of around £100 billion annually. The research, which involves using 'peptide mimics' - versions of the parasites' own brain chemistry - to confuse the real parasites and ultimately, render them impotent, has been awarded a Phase II Grand Challenges Exploration grant of $1million from the Bill & Melinda Gates Foundation to be developed in Belfast and proceed to trials in Kenya. The project will focus on banana and plantain - although in theory it could extend to other crops - which are cultivated across 130 countries, making them the eighth most produced staple in the world. The fruits are often grown by smallholders in the developing world and can account for up to 30 per cent of farmers' income. Despite their popularity, however, the crop is highly susceptible to a variety of plant parasitic nematodes, which typically reduce yields by 30-50%. Lead researcher on the project, r Johnathan Dalzell from Queen's Institute for Global Food Security said, "Through our lab work we have identified a family of peptide mimics, which specifically and potently interfere with their neurobiology, disorientating the parasites so they can't find the host plant. They then die quickly through lack of food. Importantly, these peptide mimics appear to have no impact on non-target animals. This is a clean and robust approach to parasite control." As a result of the Gates Foundation grant and other funding, the Queen's-led project will proceed to glasshouse trials, in association with the International Institute for

Tropical Agriculture in Nairobi, Kenya. Subsequently, field trials will be conducted and regulatory approval sought. (News wise, 15 October 2015 cited from http://www.isppweb.org/nldec15.asp#4).

NEW ARTICLE

Pierce's Disease (*Xylella fastidiosa*) Threatening the Maghrebian Regions. Plant Pierce's disease due to the bacterium *Xylella fastidiosa* appeared two years ago in Southern Italy causing heavy damages on olive trees and the competent Italian services did not succeed to control it until now. The same disease appeared during 2015 on one ornamental plant species in the French Corsica Island and then infiltrated to the Nice region in the Southern France. The gravity of this disease resides in the fact that the bacterium infecting the host plant, spread in all parts of the plant becoming systemic in a way that it is useless to cut or to chemically treat plants, and the only solution is to burn plants and destroy the inside bacterium. Besides, this bacterium can infect a high number of host plant species, counted by tens. The disease is also characterized by high numerous and varied bacterial insect vectors, exceeding forty species presently known, some of them already exist in the Magrebian regions. Hence, the big gravity of Pierce's disease resides in the possibility that it can easily infiltrate in Tunisia or Morocco due to their geographical closeness to the Southern Europe and to the rest of the Magrebian regions and the whole North Africa. For more details, please visit the website http://www.nasraouibouzid.tn/Profession/Profession.pdf. Bouzid Nasraoui, Tunisia.

ITALIAN SCIENTISTS VILIFIED IN WAKE OF OLIVE-TREE DEATHS

Police investigate researchers' role in devastating bacterial epidemic.

They did not expect to be hailed as heroes, say the scientists tasked with researching a deadly pathogen that is ravaging olive groves in Puglia, southern Italy. But they certainly did not predict that they would end up feeling like villains. In the past year, plant scientists at various institutes in Bari, the capital of the Puglia region, have seen their work and their motivations criticized by local campaigners. Most recently, they have been subject to a police investigation about whether they are responsible for the introduction of the bacterium, *Xylella fastidiosa*, into Puglia, or for allowing its subsequent spread. Police have called in several researchers involved in *Xylella* research for questioning and confiscated computers and documents from scientific institutes. "We'd just like to be left to do our work without this suspicion and this stress," says Donato Boscia, head of the Bari unit of the CNR Institute for Sustainable Plant Protection (IPSP), whom police questioned in April. "The scientists in Puglia working on the *Xylella* outbreak have been working non-stop for two years," adds Rodrigo Almeida, a *Xylella* expert at the University of California, Berkeley. "Their reward has been to get attacked constantly — I just can't imagine how this would feel." *Xylella* is endemic in parts of the Americas, including Costa Rica, Brazil and California, but was not previously found in Europe. That changed in October 2013, when scientists at the IPSP and the University of Bari identified[1] the bacterium as the cause of an unusual disease outbreak in olive trees. The outbreak immediately became subject to European Union (EU) regulations to limit its spread, and regional scientists began a systematic effort to understand the disease and contain it: the scientists went on to show that the bacterium was being carried by the spittlebug insect[2].

Ornamental plants

From the start, farmers and environmentalists in Italy objected to containment measures, which involved uprooting trees and spraying the groves with pesticides. But trouble for the Puglian scientists began in April 2014, when individuals told police that they suspected that the epidemic was caused by bacteria that scientists had brought in from California for a European training course on *Xylella* at the Mediterranean Agronomic Institute of Bari (IAMB) in 2010. Scientists say that this suggestion is ludicrous because the Puglia strain is different from the strains used at the workshop; the widely accepted theory is that the infection was imported with ornamental plants from Costa Rica, where the endemic *Xylella* strain matches the Puglia strain. However, the complaints spawned a much broader investigation by public prosecutors, including what role scientists may have had in the epidemic. On 4 May, police confiscated computers and documents from the University of Bari and the IPSP, as well as documents from the Centre for Agricultural Research Basile Caramia in Locorotondo, Puglia. Two weeks later,

police also seized documents from the Italian ministry of agriculture in Rome. The IAMB has voluntarily passed documents to police. The prosecutors declined *Nature*'s request for comment. But in March, one of them, Elsa Valeria Mignone, implied in an interview with *Famiglia Cristiana* magazine that they are looking into theories that the bacterium may have been deliberately introduced into the area, or became entrenched because agricultural scientists failed to monitor the region properly, either deliberately or through neglect. (Mignone also told the magazine that she was concerned about the possible corrupting influence of businesses, such as solar-energy companies, which might stand to gain from the clearing of olive groves.)

Public criticism

On 12 May, the Italian Association of Scientific Societies in Agriculture (AISSA), which represents 4,000 scientists in Italy, published a public letter defending the Puglian scientists and their work. "The claims do not have a scientific basis — that's what has shocked the scientific community," says Vincenzo Gerbi, AISSA president. Puglian scientists have had to contend with public criticism too. Several popular blogs devoted to the *Xylella* emergency have cast doubt on scientists' ways of working and their results — saying, for example, that a remedy exists but is being suppressed. And Peacelink, an Italian non-governmental organization, wrote to the EU health commissioner in March saying that *Xylella* had not been proved to be the source of the outbreak and that the deaths were instead due to a fungus that could be eliminated without destroying trees. An expert panel of the European Food Safety Authority debunked these suggestions in a report published in April. "It's frustrating to hear all these complaints when you think you are doing a public service," says Anna Maria D'Onghia, head of the pest-management division at the IAMB, who has been questioned by police. "We are always being attacked for doing too little, or the wrong things." Boscia says that the "attempts to delegitimize the results of scientific research" have been worse than the police investigations. But it is not all bad news for Puglian scientists. On 27 May, the regional government announced a €2-million (US$2.2-million) fund for projects that might aid the diagnosis, epidemiology and monitoring of the bacterium. It said that a 'containment area' in the province of Lecce — where the bacterium is now endemic, making complete eradication impossible — will be used as an open-air *Xylella* laboratory. National and European research agencies have also promised money, says Boscia. "The outdoor laboratory would be perfect for all of us — and also allow critics to put their own theories to the test."[**Alison Abbott, *Nature* 522, 13–14 (04 June 2015). doi:10.1038/nature.2015.17651].**

CONDOLENCES

Horticultural and Plant Protection Community has recently lost one of its eminent and famous scientists. Sudden **Mohamed El Mahjoub's** death came as great shock to his family, colleagues and friends. He made a substantial and significant contribution to the plant pathology of horticultural crops during his varied and productive 39 year research career. He was first recruited in 1971 as principal engineer at the National Institute of Agronomic Research of Tunisia (INRAT), then he left Tunisia for France (1981-1985) where he obtained his degree of Doctor of Science in Natural Sciences (Specialty Plant Pathology) on 1985 from the Faculty of Sciences and Techniques at the University of Western Brittany, Brest, France. Back to Tunisia, he moved from INRAT to the Higher Agronomic Institute of Chott-Mariem (ISA-ChM) where he worked from April 1986 to September 2009. He taught General mycology, fungal taxonomy, Phytopathology, Epidemiology, and Biological control of fungal diseases courses to benefit of engineering and pre-doctoral master's degrees. He also supervised many PhD, Masters of Science and Projects of End of Engineering Studies at ISA-ChM. He left a legacy in the scientific literature of more than 150 publications. Administratively, Prof. M. El Mahjoub served as Director of Plant Protection Department, Director of Studies at ISA-ChM, then as Coordinator of the Regional Pole of Agricultural Research-Development in the Center-East before being nominated as General Director of ISA-ChM.

Our colleague the late **Prof. Mohamed Chérif** was a simple man coming from a modest family. After getting the Engineer Diploma in Horticulture from the Higher Agronomic Institute of Chott-Mariem (ISA ChM) (Sousse) with the mention "very good" and obtaining the Presidential Prize in 1987, he left the homeland for Canada to continue his studies. In 1993, he went back home with the PhD degree in Plant Pathology and was recruited by the National Agronomic Institute of Tunisia (INAT, University of Carthage). Very devoted in his work, he climbed the professional scale to reach in 2008 the rank of University Professor. In the same year, he was nominated as General Director of the Technical Center of Citrus (CTA) at the Cap-Bon region in the North-East of Tunisia. Along with his new position responsibility, he maintained all his activities inside the Plant Protection Department of INAT by teaching, researching and advising master theses and doctorate dissertations, until his early

desperation. He was combative against his disease. Supported and accompanied in his last battle by his family and the medical entourage, he was an example of serenity. Aware about the degree of his disease, its evolution and his near end, he left the life without regret, without remorse.

WORKSHOPS & MEETINGS

The National High School of Agronomy (ENSA) El Harrach (Algiers) with the support of Campus France organized from 22 to 23 November 2015. A workshop entitled "Fusaria and associated mycotoxins endanger the wheat sector. This workshop was organized to close a cooperation project in the framework of the Tassili-CMEP program between laboratory of Plant Pathology and Molecular Biology of ENSA El Harrach (Algiers) and MycSA Unit of INRA Bordeaux (France) for 4 years of collaboration. The research project launched in 2012 and supported by a doctoral program, aimed to provide basic knowledge on the Fusarium species producing grain mycotoxins in Algeria and to specify the conditions that favored the production of these toxic secondary metabolites, and to set in the future effective control measures to reduce the mycotoxin content below acceptable thresholds

At project start, only few studies existed about mycotoxin in Algeria and hence our knowledge was still very sketchy about the importance of these mycotoxins in the country. Apart from some preliminary inventory work about of saprophytic fungi and mycotoxins detection in seeds, such as the presence of aflatoxins, the knowledge of other pathogenic fungal species and their impact on production and human consumption were limited.

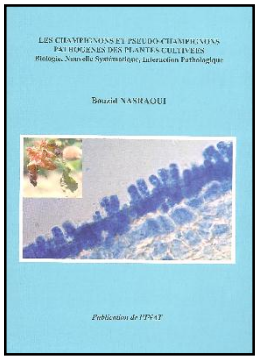
The workshop consisted of lectures by project members as well as guests. Project members have presented the main results: identification of species associated with the disease in Algeria, which is prevalent in all parts of the country aggressiveness, chemotypage and the toxigenic potential of all known species. They also exposed the evaluation of the resistance of local cultivars to the disease as well as research prospects. Guests were lectured on Fusarium toxins, their detection methods, biosynthesis and genetic regulation of production, alternative control methods, and the search for sources of resistance to Fusarium. Broader discussions were undertaken with representatives of various sectors of the Ministry of Agriculture and the farming present in relation to the exploitation of the results of research work.

The workshop was a forum for the assessment of the project CMEP on Fusarium toxins in cereals and corn in particular for identifying and setting priorities for research and promotion of collaborative research in the field between Algerian and French scientists by combining agricultural Algerian economic sector of the wheat (trade facilitation and sharing research methods and strategies).This workshop also contributed to raising awareness of the various agencies involved in the production and protection of cereals for consumption about the increase of the risks of contamination with mycotoxin-producing organisms and their effects on food safety and ways to prevention. The recommendations of the workshop's closing insisted on building collaborative efforts by setting up multiple working groups of researcher from different institutions of the Ministry of Agriculture and ENSA to a better understanding of Fusarium wheat in Algeria. This knowledge will be undertaken through the assessment of the impact of the disease, damage assessment in fields, the distribution of different species, the behavior of local varieties and lines to Fusarium, these local varieties can be a source of disease resistance and mycotoxin accumulation

❖ Publications

NEWLY ISSUED BOOKS & JOURNALS

A new book was recently published (December 2015) in French by Prof. Bouzid Nasraoui from the National Agronomic Institute of Tunisia, University of Carthage, Tunis, Tunisia. This book is entitled "Pathogenic fungi and pseudo-fungi of cultivated plants: Biology, New systematic, Pathological interaction" and is a partial update of his old book (2006) entitled "Parasitic fungi of cultivated plants: Biology, Systematic, Pathology, Diseases", both books may be consulted on the website <www.nasraouibouzid.tn/Livres/Livres.htm>. The main goal of this updating is to resume fundamentally the higher fungi systematic on the basis of the countless molecular studies that finally allowed the implementation of a normal classification on these fungi, like all other living organisms, and to abandon hence the artificial phenotypic classification of the anamorphs that have not known teleomorphs. Presently, all these anamorphs become phyletically linked to their teleomorphic groups even though the teleomorphs themselves are not encountered in the nature. This same molecular approach has also allowed rearranging the fungi and pseudo-fungi systematic on the basis of genotypes and not phenotypes which are very influenced by the environment. Outside the refreshing of the systematic, this book contains also the updating of the section relative to the interaction between pathogenic fungi and pseudo-fungi with their host plants. The biological section was also resumed with minor changes; the rest of the old book (disease and some other chapters) did not need updating. *Correct reference: Nasraoui B., 2015. Les champignons et pseudo-champignons pathogènes des plantes cultivées: Biologie, Nouvelle systématique, Interaction pathologique. Publication de l'INAT, 180 p, Tunisia.*



Plant Quarantine Pests in Qatar and Their Environmental Risk Management:
This book is an attempt to cover the needs for introductory texts on the principles of plant health and quarantine in the State of Qatar. The book contains sixteen chapters which cover: a brief historic scope and fundamental principles of agricultural quarantine, legislation acts and regulations governing the agricultural quarantine policy in Qatar, inspection procedures for the imported agricultural consignment products, lists of the agricultural quarantine pests (A1 & A2), standards for Phytosanitary accreditation and certification, Qatar's membership in the International Plant Protection Convention (IPPC), inspection and sampling of the imported agricultural consignments, environmental risk analysis and management of the plant quarantine pests in Qatar, customs and port law guidelines involving: plant quarantine terminologies, application forms, quarantine procedure and fees. Total pages: 381 with 230 photos. (*Contact Dr. Emad Hussain Al-Turaihi*: emadhussain30@yahoo.com).

SELECTED RESEARCH PAPERS

- ***Tuta absoluta* (Lepidoptera: Gelechiidae): Thermal requirements and effect of temperature on development, survival, reproduction and longevity.** Flavia da Silva Krechemer and Luis Amilton Foerster. Eur. J. Entomol.112 (4): 658–663, 2015.

- **Effect of military activity on butterfly (Lepidoptera) communities in Korea: Conservation and maintenance of red listed species.** Sung-Soo Kim, Tae-Sung Kwon and Cheol Min Lee. .Eur. J. Entomol. 112(4): 770–777, 2015.

- **Postharvest Irradiation Treatment for Quarantine Control of *Drosophila suzukii* (Diptera: Drosophilidae) in Fresh Commodities.** Peter A. Follett, Allison Swedman, and Donald K. Price. Journal of Economic Entomology .107(3), 2015.

- **Effects of Methyl Eugenol Feeding on Mating Compatibility of Asian Population of *Bactrocera dorsalis* (Diptera: Tephritidae) with African Population and With *B. carambolae*.** Ihsan Ul Haq, Marc J. B. Vreysen, Mark Schutze, Jorge Hendrichs, and Todd Shelly. Journal of Economic Entomology Advance 11, 2015.

- **Postharvest Irradiation Treatment for Quarantine Control of *Drosophila suzukii* (Diptera: Drosophilidae) in Fresh Commodities.** Peter A. Follett, Allison Swedman, and Donald K. Price3journal of Economic Entomology. 107(3), 2015.
- **Mycotoxin occurrence in maize produced in Northern Italy over the years 2009–2011: focus on the role of crop related factors.** Marco Camardoleggieri, Terenzio Bertuzzi, Amedeo Pietri and Paola Battilani. Phytopathologia Mediterranea.54 (2): 212−221.2015.
- **Effectiveness of composts and *Trichoderma* strains for control of Fusarium wilt of tomato.** Yousra Taghdi, Rosa Hermosa, Sara Domínguez, María Belén Rubio, Haiat Essalmani, Carlos Nicolás and Enrique Monte. Phytopathologia Mediterranea .54(2): 232−240.2015.
- **Effect of microwave on different stages of dates moth, *Ephestia cautella* (Walker) (Lepidoptera: Pyralidae), in stored dates.** Mohammed Z. Khalaf, Hussain F. Alrubeai, Falah H. Naher. Integrated Protection of Stored Products IOBC-WPRS Bulletin Vol. 111, pp. 117-123. 2015.
- **Egg parasitoid attraction toward induced plant volatiles is disrupted by an on host herbivore attacking above or below ground plant organs .**Rihem Moujahed, Francesca Frati , Antonino Cusumano, Gianandrea Salerno , Eric Conti , Ezio Peri and Stefano Colazza. Frontiers in Plant Science Plant-Microbe Interaction. Vol.5, Article 601(2):1-10.2014. doi:10.3389/fpls.2014.00601.
- **Integrated management for major date palm pests in Iraq.** Abdul-Sattar A. Ali, Nazar N. Hama Emirates Journal of Food and Agriculture. 28(1): 24-33.2016. http://www.ejfa.me/.
- **Impact of date palm borer species in Iraqi Agroecosystems .**Mohammed Zaidan Khalaf, Hussain Fadhel Alrubiae. Emirates Journal of Food and Agriculture. 28(1): 52-57.2016. http://www.ejfa.me/

PAPERS PUBLISHED IN THE ARAB JOURNAL OF PLANT PROTECTION (AJPP) VOLUME 33, ISSUE 3, DECEMBER 2015

ECOLOGY, BIOLOGY

- **Dynamics and diversity of carabid beetles (Coleoptera: Carabidae) in some fruit orchards in Syria.** Y.A. Ali, I. Rapuzzi, A. Ahmad, J. Ammar and R. Darwish (SYRIA & ITALY) (Pages 241-247).
- **First record on identification and population dynamics of the false spider mite *Brevipalpus californicus* (Banks), in lemon orchards in Lattakia governorate of Syria.** S. Kerhili, Z. Barbar and L.H. Aslan (SYRIA) (Pages 248-253).
- **The effect of caging honeybee Queens at the middle of the season on the development of *Varroa destructor* and honeybees (*Apis mellifera*) populations.** N.Y. Daher-Hjeij and A.K. El-Boraki (SYRIA) (Pages 254-258).
- **Survey and biological study of Barley stem gall midge *Mayetiola hordei* Keiffer in Syria.** M. Tamer, A.N. Trissi, M. El-Bouhssini and N. Kaake (SYRIA & MOROCCO) (Pages 259-264).
- **The biology of the olive leaf midge *Dasineura oleae* F. Löew in the olive trees along the Syrian coast.** A.M. Ramadan, R. Abu Tara and Z.M. Baidaq (SYRIA) (Pages 265-271).

BIODIVERSITY

- **Genetic variation in *Tilletia tritici* and *T. laevis* isolates, the causal agents of wheat common bunt disease in Iraq**. E.M. Al-Maaroof, S.A. Shamsallah and M.S. Hasn (IRAQ) (Pages 272-279).

CONTROL

- **Role of bion and allopurinol in inducing systemic acquired resistance against *Potato virus Y* in potato plants.** A.Y. Ahmad,T.A. Moustafa and F. M. Abo El-Abbas (SYRIA & EGYPT) (Pages 280-286).

BIOLOGICAL CONTROL

- **Biological control of chickpea root rot caused by *Fusarium solani* using Biocont-T in the field.** H.H. Ali, K.M. Fatah and Q.A. Marzani (IRAQ) (Pages 287-291).

- **Prevalent soil mycoflora at protected tomato rhizosphere and their *in vitro* antagonism against *Pyrenochaeta lycopersici* along the Syrian coast.** K. El-Rahyeh, S. Kodsiyeh, M. Abou Shaar and W. El-Ibrahim (SYRIA) (Pages 292-301).
- **Pathogenicity of *Bacillus thuringiensis* against three important date palm insect pests.** M. Latifan and G.R. Kajbafvala (IRAN) (Pages 323-329).

HOST RESISTANCE

- **Evaluation of susceptibility of some barley local varieties and experimental lines to infestation with barley stem gall midge *Mayetiola hordei* Keiffer.** A. Arab, S. Khoja, M. Abdel Hay, K. Hukan, Y. Azar, B. Koro and R. Kudsiyeh (SYRIA) (Pages 302-308).

INTEGRATED PEST MANAGEMENT (IPM)

- **Effect of using pheromone traps and pesticides for the control of tomato leafminer *Tuta absoluta* (Meyrick) at Zummar in Iraq.** H.M. Mohammed (IRAQ) (Pages 309-313).

RESIDUES

- **Determination of alpha cypermethrin residues in tomato fruits**. B. Al-Rahban, F. Bakor and A. Al-Mhemed (SYRIA) (Pages 314-319).

NEW RECORD

- **First record of longhorned beetle *Xylotrechus stebbingi* (Coleoptera: Cerambycidae) in Syria.** Y.A. Ali (SYRIA) (Pages 320-322).

PAPERS, WHICH WILL BE PUBLISHED IN THE ARAB JOURNAL OF PLANT PROTECTION (AJPP), VOLUME 34, ISSUE 1, APRIL 2016

- **A survey for some viruses affecting potato in Syria, and serological detection of main strains of *Potato virus Y*.** S. Al-Chaabi, A.R. Darwesh, F. Ismaeil, J. Mando and T. Abu-Fadel (SYRIA).
- **Effect time of inoculation with *Cucumber mosaic virus* on plant height and specification of pepper fruits under field conditions in Lattakia.** H.A. Al-Ajourya, I.D. Ismail and B.M. Samra (SYRIA).
- **Efficacy of some Syrian isolates of *Verticillium chlamydosporium* and two species of *Paecilomyces* in controlling the sugar beet cyst nematode (*Heterodera schachtii*).** A.M. Haidar, Kh.M.Kh. Al-Assas and A.A.M. Dawabah (SYRIA & SAUDI ARABIA).
- **Determination of some virulent and epidemic factors related to wheat septoria leaf blotch.** A. Abdel Ghani, M. Abou Shaar and M. Kasem (SYRIA).
- **Efficiency of some chemical and bio-pesticides in controlling the pistachio twig borer, *Kermania pistaciella* Amsel.** S. Khoja, M. Khalaf, A. Arab, J. Mohamed and S. Kudsiyeh (SYRIA).
- **Genetic diversity of some isolates of entomopathogenic fungi collected from different regions.** F. Khatib, A. Karkoukly, A.N. Trisi and M. El-Bouhssini (SYRIA & MOROCCO).
- **Preliminary evaluation of releasing *Phytomyza orobanchia* Kalt. for controlling *Orobanche ramosa* under muslin cages in tomato fields.** M. Ahmad, H. Habak and B. El-Rahban (SYRIA).
- **Using Sequence Tagged Site (STS) marker and Cleaved Amplified Polymorphic Sequence (CAPS) to study the genetic variation of sun pest populations.** L. Ali, M. El-Bouhssini and M.N. Al-Salty (SYRIA & MOROCCO).

EVENTS OF INTEREST

2016 - 2018

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

17-18 April, 2016	The 7th Conference of Agricultural Science in Faculty of Agriculture, Assiut University.http://www.aun.edu.eg/faculty_agriculture/arabic/conf/conf.htm
26-27 April, 2016	The 2nd Scientific Agricultural Conference, Sumail-Duhok, Kurdistan Region of Iraq. rshtoma@uod.ac
25-27 May,2016	Conference on Environmental and Agriculture, Food Water, Soil, Air (ICAE 2016), Kuala Lumpur, Malaysia. http://www.nzhouseofscience.com
13 - 16 June, 2016	5th International Symposium on Tomato Diseases .ISHS. Málaga, Spain. http://www.tomatodiseases2016.es/web/
13-17 June, 2016	11th International Symposium on Adjuvants for Agrochemicals (ISAA 2016).USA. Monterey Organizer: International Society for Agrochemical Adjuvants (ISAA Society). www.isaa2016.org
27 June- 1 July,2016	12th Ecology and Behaviour Conference. Lyon, France. eb2016.sciencesconf.org
11 -15 July, 2016	8th Symposium of the European Association of Acarologists Universidad Politécnica De Valencia. http://euraac.webs.upv.es/SympValencia/abstract.php
23 – 30 July, 2016	4th International Scientific Conference of Genetic and Environment Cairo, Egypt. agerciraq@gmail.com
25 – 27 July, 2016	7th World Congress on Molecular Pathology" (Molecular Pathology 2016). Melbourne, Australia. http://molecularpathology.conferenceseries.com/
3-5 August, 2016	9th International Conference on Plant Protection in the Tropics (ICPPT) Kuching, Sarawak, Malaysia. http://mapps.org.my/9th-icppt/
23-26 August,2016	10th Meeting International Pest Risk Research Group. Parma-Italy. http://www.pestrisk.org/?page_id=640
28 Aug. – 1Sep. 2016	32nd International Symposium of Nematology University of Minho, Braga, Portugal. http://synergy4science.com/esn2016/
12-15 September, 2016	XIV Meeting of the Working Group Biological Control of Fungal and Bacterial Plant Pathogens Biocontrol and Microbial Ecology Humboldt University, Berlin. http://www.iobc-wprsberlin2016.de
25-30 September, 2016	The XXV International Congress of Entomology, Orlando, Florida, USA. http://ice2016orlando.org/,http://www.spongospora.ethz.ch/workshops.html#CH
6-9 October, 2016	7th International Scientific Agriculture Symposium "Agrosym 2016" Jahorina, Bosnia and Herzegovina.www.agrosym.rs.ba
10-12 October, 2016	The 2nd International Conference for date palm (ICDP 2016) at College of Agriculture and Veterinary Medicine, Qassim University, Kingdom of Saudi Arabia, from 10-12 October 2016 http://www.cavm.qu.edu.sa/en/ICDP2016/Pages/Home1.aspx
10-15 October, 2016	3rd African Congress for conservation Biology.(Conservation Biology in Africa: Challenges of Globalization) Faculty of Science El Jadida – Morocco. www.fs.ucd.ac.ma/accb2016
19 - 22 October, 2016	6th European Congress of Virology Congress Center Hamburg, Germany. http://www.eurovirology2016.eu/
14-18 November, 2016	9th Australasian Soil-borne Diseases Symposium Heritage Hanmer Springs, Canterbury, New Zealand. http://www.appsnet.org/Interest_Groups/ASDS/asds.aspx
12-15 September, 2017	Asian Conference on Plant Pathology 2017 Jeju Island, South Website: Korea. http://acpp2017.org/
5-9 November, 2017	12th Arab Congress of Plant Protection, ACPP 2017 Cairo- Egypt. www.acpp2017.sci.eg
29 July – 03 Aug, 2018	11th International Congress of Plant Pathology (ICPP2018), Boston, Massachusetts, USA. www.icpp2018.org

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