Arab and Near East Plant Protection Newsletter

Number 52, April 2011

❖ Editorial Board

❖ Editorial Assistant

The Arab and Near East Plant Protection Newsletter (ANEPPNEL) is jointly published Triple a year by the Arab Society for Plant Protection and the Near East Regional Office of the FAO. All correspondence should be sent either to Adwan Shehab, Editor (adwanshehab@gmail.com) or to Nouran Attar, Editorial Assistant (n.attar@cgiar.org).

Arab and Near East
PLANT PROTECTION NEWSLETTER

Number 52, April 2011

CONTENTS

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.

EDITORIAL

Towards further improvement

The famous philosopher “Ghazali” once said: “People are of two types, those who sleep under the light and those who wake up in the dark”. Many countries in the last two centuries were able to manage their affairs by making the best use of their human and natural resources and consequently achieve the goals they set. This is what we are keen to do.

As of this issue of ANEPPNEL, a new editorial board was selected with leadership given to the younger generation. In this age of information technology revolution, successful dissemination of knowledge requires high technical, managerial and moral standards able to adapt with the changing world. We are very optimistic that the new editorial board has such standards and will be able to achieve the goals of the Arab Society of Plant Protection when decided to issue this newsletter as a strong link and a binding force among the network of Arab and Near East plant protection scientists.

The success of the new editorial board greatly depends on how much they will be able to encourage more colleagues from the region to participate in enriching the newsletter with important events that happens in their local surroundings and they like to share it with those that are far away. It is this two-way communication between the plant protection scientific community and the editorial board that will create a final product which will bring scientists together. We are confident that the new leadership of the newsletter has the qualities needed to continue the success which started a quarter of a century ago and will be able to bring it to new heights.

Bassam Bayaa
University of Aleppo, Syria

❖ Crop Protection News from Arab and Near East Countries

INVASIVE AND NEW PESTS

EGYPT

First record for the slug parasitic nematode, *Phasmarhabditis hermaphrodita* (Schneider) in Egypt. The rhabditid nematode, *Phasmarhabditis hermaphrodita* is a lethal parasite of certain terrestrial gastropods and has been shown as a biocontrol agent under laboratory and field conditions. In Egypt, *P. hermaphrodita* was isolated for the first time from different species of terrestrial gastropods found associated with various crops at Aga and Mansoura districts of Dakhalia Governorate during the year 2000/2001. Females and dauer larvae (IJs) were described and illustrated based on the light microscope. Males are not found as this species seemed to be protandrous. PCR analysis confirmed nematode identification. The Egyptian isolate of *P. hermaphrodita* was found to be shorter and lower in width than the British isolate. V%, a, b and c parameters showed detectable variations between two isolates with values of 54%, 17.7, 4.28, 13.7 in the Egyptian isolate, and 51%, 19.5, 7.2 and 15.8 for the British isolate, respectively. [M. A. M. Genena, F. A. A. Mostafa, A. H. Fouly and A. A. Yousef (Egypt). Archives of Phytopathology and Plant Protection, 44(4): 340-345, 2011].

IRAN

Association of a Phytoplasma with Pistachio Witches' Broom Disease in Iran. Pistachio is an important crop in Iran, which is a major producer and exporter of pistachio nuts. The occurrence of a new disease of pistachio trees, characterized by the development of severe witches' broom, stunted growth and leaf rosetting, was observed in Ghazvin Province. A phytoplasma was detected in infected trees by polymerase chain reaction (PCR) amplification of rRNA operon sequences. Nested PCR with primer pairs P1/P7 and R16F2n/R16R2 was used for specific detection of the phytoplasma in infected trees. To determine its taxonomy, the random fragment length polymorphism (RFLP) pattern and sequence analysis of the amplified rRNA gene were studied. Sequencing of the amplified products of the phytoplasma 16S rRNA gene indicated that pistachio witches' broom (PWB) phytoplasma is in a separate 16S rRNA group of phytoplasmas (with sequence homology 97% in Blast search). The unique properties of the DNA of the PWB phytoplasma indicate that it is a representative of a new taxon. [Maryam Ghayeb Zamharir and Mansoreh Mirabolfathi (Iran). Journal of Phytopathology, 159(1): 60–62, 2011].

Genetic Diversity of *Watermelon mosaic virus* in Slovakia and Iran Shows Distinct Pattern. Although *Watermelon mosaic virus* (WMV) is one of the main cucurbit pathogens and has a worldwide distribution, reliable data on its molecular variability is still limited to some geographical regions. The genetic diversity of 36 WMV isolates from Slovakia and Iran were studied by sequence analysis targeting two opposite genomic regions (P1 and NIb-CP). Phylogenetic analysis using partial sequences of the P1 gene showed that Slovak WMV isolates had greater diversity, representing two groups (group 1 and group 2), whereas all Iranian isolates belonged to a single group (group 2), with relatively low divergence. Interestingly, in the NIb-CP region, all analyzed Slovak and Iranian isolates clustered within the group 1, thereby illustrating the phylogenetic discrepancies between the two analyzed genomic regions. Based on these data, one-half of analyzed Slovak isolates and all Iranian WMV isolates showed a switch in affiliation based on considered genomic region, clearly indicating their recombinant nature. This work provides further evidence of the significant contribution of recombination to the evolutionary history of WMV and outlines the necessity to target more than a single genome fragment for accurate typing of WMV isolates. [Miroslav Glasa, Kaveh Bananej, Lukáš Predajňa and Aisan Vahdat (Iran). Plant disease, 95(1): 38-42, 2011].

Molecular Characterization of a Phytoplasma Associated with Potato Witches'-broom Disease in Iran. Potato plants showing symptoms suggestive of potato witches'-broom disease including witches'-broom, little leaf, stunting, yellowing and swollen shoots formation in tubers were observed in the central Iran. For phytoplasma detection, Polymerase Chain Reaction (PCR) and nested PCR assays were performed using phytoplasma universal primer pair P1/P7, followed by primer pair R16F2n/R16R2. Random fragment length polymorphism analysis of potato phytoplasma isolates collected from different

production areas using the *Cfo*I restriction enzyme indicated that potato witches'-broom phytoplasma isolate (PoWB) is genetically different from phytoplasmas associated with potato purple top disease in Iran. Sequence analysis of the partial 16S rRNA gene amplified by nested PCR indicated that '*Candidatus* Phytoplasma trifolii' is associated with potato witches'-broom disease in Iran. This is the first report of potato witches'-broom disease in Iran. [Parham Hosseini, Masoud Bahar, Golnoush Madani and Leila Zirak (Iran). Journal of Phytopathology, 159(2): 120-123, 2011).

Widespread occurrence and molecular characterization of *Wheat dwarf virus* in Iran. *Wheat dwarf virus* (WDV), genus *Mastrevirus*, was associated with yellowing and dwarfing of wheat and barley in many parts of Iran. The complete nucleotide sequence of a barley isolate of the virus consisted of 2733 nucleotides and was most similar to barley isolates of WDV from Turkey, Czech Republic and Germany, but different enough to be regarded as a new strain of the virus. Phylogenetic analysis indicated that mastreviruses causing yellows and dwarfing in wheat and barley form two distinct groups. The Iranian and European barely isolates fall in one group while all wheat isolates are placed in another group. These results confirmed the division of WDV isolates into two distinct strains. WDV was also found in mixed infection with barley yellow dwarf viruses (BYDVs) in barley and wheat plants. Using dot blot hybridization with the full ssDNA genome of the Iranian barley isolate of WDV as a probe and PCR with primers which amplified the full length DNA of the virus, WDV was detected in 46 of 211 BYDV positive barley and wheat samples from northern, northwestern, northeastern, central and southern Iran. It is concluded that in addition to BYDVs, WDV is a major component of the yellows complex in cereal fields in Iran. [S. A. A. Behjatnia, A. R. Afsharifar, V. Tahan, M.H. Amid Motlagh, O. Eini Gandomani, A. Niazi and K. Izadpanah (Iran). Australasian Plant Pathology, 40: 12-19, 2011].

OMAN

First Report of a Group 16SrII Phytoplasma Associated with Witches'-Broom of Eggplant in Oman. Eggplant (*Solanum melongena* L.) belongs to the family Solanaceae and is an important vegetable cash crop grown in most parts of Oman. In February 2010, plants showing phyllody symptoms and proliferation of shoots resembling those caused by phytoplasma infection were observed at Khasab, 500 km north of Muscat. Total genomic DNA was extracted from healthy and two symptomatic plants with a modified (CTAB) buffer method and analyzed by direct and nested PCR with universal phytoplasma 16S rDNA primers P1/P7 and R16F2n/ R16R2, respectively. PCR amplifications from all infected plants yielded an expected product of 1.8 kb with P1/P7 primers and a 1.2-kb fragment with nested PCR, while no products were evident with DNA from healthy plants. Restriction fragment length polymorphism (RFLP) profiles of the 1.2-kb nested PCR products of two eggplant phyllody phytoplasma and five phytoplasma control strains belonging to different groups used as positive control were generated with the restriction endonucleases *Rsa*I, *Alu*I, *Tru*9I, *T-HB*8I, and *Hpa*II. The eggplant phytoplasma DNA yielded patterns similar to alfalfa witches'-broom phytoplasma (GenBank Accession No. AF438413) belonging to subgroup 16SrII-D, which has been recorded in Oman. The DNA sequence of the 1.8-kb direct PCR product was deposited in GenBank (Accession No. HQ423156). Sequence homology results using BLAST revealed that the eggplant phyllody phytoplasma shared >99% sequence identity with Scaevola witches'-broom phytoplasma (Accession No. AB257291.1), eggplant phyllody phytoplasma (Accession No. FN257482.1), and alfalfa witches'-broom phytoplasma (Accession No. AY169323). The RFLP and BLAST results of 16S rRNA gene sequences confirm that eggplant phyllody phytoplasma is similar to the alfalfa phytoplasma belonging to subgroup 16SrII-D. To our knowledge, this is the first report of a phytoplasma of the 16SrII-D group causing witches'-broom disease on eggplant in Oman. [A. M. Al-Subhi, N. A. Al-Saady, A. J. Khan and M. L. Deadman (Sultanate of Oman). Plant Disease, 95(3): 360, 2011].

Occurrence and characterization of fungi and oomycetes transmitted via potting mixtures and organic manures. A study was conducted to investigate the most common fungal and oomycete pathogens introduced into farms in Oman via potting mixtures and organic manures. A total of 37 commercial types of potting mixtures (2 local and 35 imported from overseas), 4 commercial types of organic manures and 11 noncommercial types of organic manures were included in the study. Identification of the isolated species was based on morphological characteristics, except for the most common species which were further identified using sequences of the internal transcribed spacer region of the ribosomal DNA (ITS rDNA). *Fusarium* spp. (14%), *Pythium aphanidermatum* (3%), *Alternaria* spp. (5%),

Helminthosporium spp. (5%) and Cladosporium spp. (3%) were recovered at different frequencies from samples of potting mixtures. *Fusarium solani* (40%) and *Fusarium equiseti* (47%) were recovered at high frequencies from samples of organic manures. Isolations from organic manures also yielded *Pythium periplocum* (7%), *Rhizoctonia solani* (7%), *Fusarium lichenicola* (7%), *Helminthosporium* spp. (27%) and *Alternaria* spp. (27%). *Trichoderma* spp., *Penicillium* spp., *Aspergillus* spp. and *Rhizopus* spp. were found to be common in samples of potting mixtures and organic manures. Investigating sensitivity to hymexazol among 9 isolates of F. equiseti and 13 isolates of *F. solani* revealed variations among different isolates. The EC50 values ranged from 1 to over 1200 (avg. 192 mg ml_1) for F. equiseti isolates and from 135 to 789 (avg. 324 mg ml_1) for *F. solani* isolates, indicating presence of resistance to this important fungicide among some Fusarium isolates. This appears to be the first report of contamination with *R. solani*, *P. periplocum*, *F. solani*, *F. equiseti* and *F. lichenicola* of organic manures. This study appears to report for the first time *F. lichenicola* in Oman and appears to be the first report of occurrence of resistance to hymexazol among *F. equiseti* and *F. solani* isolates. [A.M. Al-Sadi, F.A. Al-Said, A.H. Al-Jabri, I.H. Al-Mahmooli, A.H. Al-Hinai, A.W.A.M. de Cock (Sultanate of Oman & Netherlands). Crop Protection, 30: 38-44, 2011].

SYRIA

First Report of *Wheat dwarf virus* and Its Vector (*Psammotettix provincialis*) Affecting Wheat and Barley Crops in Syria. A field survey covering the major cereal-production areas of Syria was conducted during May 2009. A total of 938 wheat and 971 barley samples with typical symptoms of viral infection were collected from 45 wheat and 58 barley fields. All collected samples were tested by the tissue-blot immunoassay at the Virology Laboratory of ICARDA, Syria using six specific cereal virus antisera, including polyclonal antibody AS-0216 for *Wheat dwarf virus* (WDV) provided by the German Collection of Microorganisms and Cell Cultures (DSMZ). Serological tests showed that WDV was detected in 16 wheat (cv. Cham 8) and five barley (cv. Arabic abiad) samples collected from Al-Hasskah governorate (eastern region of Syria) and showing dwarfing, yellowing, and reduced heading. Samples that reacted with WDV antiserum were transmitted from infected plants to healthy plants of oat (*Avena sativa* L.), barley (*Hordeum vulgare* L.), wheat (*Triticum aestivum* L.), and some grass species using four different leafhopper species, collected from Syrian wheat and barley fields, in a persistent manner. Leafhopper transmission tests indicated that only *Psammotettix provincialis* Ribaut was able to transmit Syrian barley WDV isolates (SB 1248-09 and SB 1249-09) from infected barley plants to healthy barley (48 plants became infected of 50 plants inoculated) and oats (45 of 50) under greenhouse conditions. The identity of *P. provincialis* was confirmed by the British Museum. Total DNA was extracted from six WDV-positive samples (three wheat and three barley) and tested by PCR using WDV primer set (WDV-F: 5′-TTGAGCCAATCTTCGTC-3′; WDV-R: 5′-GGAAAGACTTCCTGGGC-3′). All six Syrian WDV-positive samples generated amplicons around the expected size (~253 bp). The amplicons from one isolate from wheat (SW 2131-09, GenBank Accession No. HQ113095) and one isolate from barley (SB 1248-09, GenBank Accession No. HQ113096) showed they had 86% sequence identity with each other, suggesting that both isolates can be considered to belong to the same species. Barley isolate SB 1248-09 had 99% sequence identity to an Iranian isolate of *Barley dwarf virus* (FJ620684.1) and 92% identity to most European barley-WDV isolates (e.g., Germany [AM942044.1] and Hungary [FM999832.1]), whereas, the wheat isolate (SW 2131-09) had 98 to 100% identity with most European wheat-WDV isolates (e.g., Czech Rep [FJ546191.1] and Germany [AM296023.1]) and a Chinese isolate (EF536868.1). WDV has been reported to infect cereals in few countries in West Asia and North Africa (Turkey, Tunisia, and Morocco) and causes economic losses on wheat in many countries in Europe (e.g., Sweden). WDV has been reported to be transmitted in a persistent manner only by leafhoppers (*P. alienus* Dahlbom) to a wide range of cereal and wild grasses. Two strains of WDV are known, one that primarily infects wheat and another that infects barley. To our knowledge, this is the first record of WDV (both strains) infecting wheat and barley crops in Syria and the first report of *P. provincialis* as a WDV vector worldwide. [A.M. Ekzayez, S.G. Kumari and I. Ismail (Syria), Plant Disease, 95(1): 76, 2011].

TUNISIA

Detection of Olive-infecting Viruses in Tunisia. During a virus survey in autumn 2007 and spring 2008 of two Tunisian olive mother blocks, 175 olive samples were collected from 19 different cultivars and tested by RT-PCR for the presence of Arabis mosaic virus (ArMV), Cherry leaf roll virus (CLRV), Cucumber mosaic virus (CMV), Olive

latent ringspot virus (OLRSV), Olive latent virus 1 (OLV-1), Olive latent virus 2 (OLV-2), Olive leaf yellowing-associated virus (OLYaV) and Strawberry latent ringspot virus (SLRSV), using specific sets of primers. The PCR-negative samples were also subjected to dsRNA and mechanical transmission tests. PCR results indicated that c. 86% of the trees were infected with at least one virus, whereas visible bands were shown by 3 of 24 PCR-negative samples in dsRNA analysis. OLYaV was the most prevalent virus (49.1%), followed by OLV-1 (34.3%), CMV (25.7%), OLRSV (16.6%), CLRV (13.1%), SLRSV (7.4%) and OLV-2 (6.9%), whereas ArMV was not detected. Very high infection rates were found in the two main oil cvs. Chemlali (84.6%) and Chétoui (86.9%). [Manel El Air, Naima Mahfoudi, Michele Digiaro, Asma Najjar and Toufic Elbeaino (Tunisia & Italy). Journal of Phytopathology, 159(4): 283–286, 2011].

TURKEY

First Report of Charcoal Rot Caused by *Macrophomina phaseolina* in Sunflower in Turkey. Charcoal rot symptoms were observed on 2-month-old oilseed sunflower plants (*Helianthus annuus* L.) in the Eskişehir Province of Turkey in June 2009. The disease was observed in 70% of the fields surveyed and incidence ranged from 10 to 50%. Symptoms were first observed in plants approaching physiological maturity and consisted of silver-gray lesions girdling the stem at the soil line, reduced head diameter compared with non-infected plants, and premature plant death. Pith in the lower stem was completely absent or compressed into horizontal layers. Black, spherical microsclerotia were observed in the pith area of the lower stem, underneath the epidermis, and on the exterior of the taproot. The internal stem had a shredded appearance. Later, the vascular bundles became covered with small, black flecks or microsclerotia of the fungus. Forty plant samples were collected from 10 fields. After surface sterilization with 2% NaOCl, outer tissues sampled from diseased tissues (2 to 3 mm long) of root and stems were removed and transferred to potato dextrose agar containing 250 mg liter^{-1} of chloramphenicol. Petri plates were incubated for 7 days at 26 ± 2°C in the dark. Ninety-eight percent of the fungal colonies were identified as *Macrophomina phaseolina* (Tassi) Goidanich based on gray colony color, colony morphology, and the size of the microsclerotia, which ranged from 80 to 90 µm in diameter, from both infected sunflowers and compared with pure cultures (3). All resulting cultures produced abundant microsclerotia. The only other sunflower pathogen known to form microsclerotia is *Verticillium dahliae* Kleb., whose microsclerotia are irregular in shape and 15 to 50 µm in diameter. Sequence-related amplified polymorphisms technique was used for diversity of *M. phaseolina* since it has proven to be more informative than amplified fragment length polymorphism, random amplified polymorphic DNA, and simple sequence repeat (2). Results showed a high level of genetic diversity (60%) among the 26 isolates of *M. phaseolina*. Sequencing of the internal transcribed spacer region (1) showed high homology (>96%) to *M. phaseolina* (GenBank Accession No. HQ380051). Pathogenicity tests for 20 isolates of *M. phaseolina* were carried out on three commercially used cultivars, SANAY, TUNCA, and TR-3080. Groups of 10 seedlings were grown separately in an autoclaved peat/soil mixture in 30-cm-diameter plastic pots in a greenhouse at 30 ± 2°C. Soil infestation was performed 1 day before sowing. Two-week-old cultures on barley medium (4) were blended in distilled sterile water and adjusted to 10^5 sclerotia ml^{-1}. Each pot received 250 ml of inoculant. Each treatment had three replications. Three pots for each cultivar were left uninoculated. Within 3 weeks, five to seven inoculated plants in each pot died. Identical disease symptoms were observed 30 days after inoculation; on the control plants no symptoms were observed. Microsclerotia were produced after 7 weeks at the stem base on 85% of the surviving plants. To our knowledge, this is the first report of *M. phaseolina* in sunflower in Turkey. [A. Mahmoud and H. Budak (Turkey). Plant disease, 95(2): 223, 2011.]

First Report of *Cylindrocarpon liriodendri* on Kiwifruit in Turkey. During a routine survey of diseases of kiwifruit (*Actinidia chinensis* Planch.) cv. Hayward conducted in autumn of 2009 in Ardeşen, Rize Province (eastern Black Sea Region, Turkey), symptoms of a new disease were observed in five locations. Affected trees showed leaf wilting that frequently led to the death of the trees. Symptoms at ground level included necrotic lesions on woody tissues of both the rootstock and roots. Small pieces from necrotic wood and root tissues were surface disinfested and plated onto potato dextrose agar (PDA) medium amended with 0.5 g liter^{-1} of streptomycin sulfate and incubated for 7 days at 25°C in the dark. Isolates were transferred to PDA and presumptively identified as a *Cylindrocarpon* sp. by morphology and conidial characteristics. The isolates were transferred to PDA and Spezieller Nährstoffarmer Agar (SNA) and then incubated at 25°C for 10 days with a 12-h photoperiod. On PDA, the isolates developed

floccose to felted mycelium, which varied in color from brown-yellow to sepia. On SNA, all isolates produced microconidia measuring 6.25 to 15 (9.6) × 2.5 to 5 (3.02) µm and macroconidia of one-septate measuring 7.5 to 20 (13.3) × 2.5 to 5 (3.8) µm, two-septate measuring 12.5 to 25 (20.7) × 3.25 to 5 (4.58) µm, and three-septate measuring 16.3 to 30 (11.04) × 3.75 to 5 (4.82) µm. Chlamydospores 7.5 to 11.3 (9.78) µm were intercalary or terminal in the mycelium, single or occasionally in chains. Identity of these isolates was determined by a multiplex PCR system using a set of three pairs of specific primers (Mac1/MaPa2, Lir1/Lir2, and Pau1/MaPa2), which generated a product size of 253 bp, which is characteristic of *Cylindrocarpon liriodendri* J.D. MacDonald and E.E. Butler, in agreement with morphological features. Additionally, the internal transcribed spacers regions (ITS1 and ITS4) of rDNA were obtained for isolates 10K-TR1 and 10K-TR2 and deposited in GenBank (Accession Nos. HQ113122 and HQ113123). These sequences showed high similarity (98%) with the sequence of *C. liriodendri* (GenBank Accession No. DQ718166). A pathogenicity test was conducted using isolate 10K-TR1 and repeated twice. Six 8-month-old callused and rooted cuttings of kiwifruit cv. Hayward were surface disinfested for 1 min in a 1.5% sodium hypochlorite solution, washed twice with sterile distilled water (SDW), and inoculated by dipping their roots for 30 min in a spore suspension of the fungus (1×10^6 conidia ml^{-1}) obtained from 30-day-old colonies grown on PDA. Six control cuttings were dipped in SDW. Two weeks later, cuttings were drench inoculated with 50 ml of the designated spore suspension to guarantee root infection and controls were drenched again with SDW. Plants were maintained in a greenhouse with a temperature range of 25 to 30°C. Four months after inoculation, the inoculated plants developed wilting and root symptoms similar to those observed in natural infections and *C. liriodendri* was reisolated, completing successfully Koch's postulates. No symptoms were observed on the control plants. To our knowledge, this is the first report of *C. liriodendri* on kiwifruit trees in Turkey. [İ. Erper, B. Tunali, C. Agustí-Brisach and J. Armengol (Turkey & Spain). Plant Disease, 95(1): 76, 2011].

First Report of Brown Felt Blight Caused by *Herpotrichia juniperi* on *Cedrus libani* in Turkey. Lebanon cedar (*Cedrus libani* A. Rich) is an ecologically, economically, and historically important conifer species that mainly occurs at present in the Taurus Mountains in southern Turkey. In former times, extensive forests of this species were also found in Syria and Lebanon. However, because of intensive cutting, burning, and goat grazing, only small populations are left in these countries. Currently, the range of Lebanon cedar covers approximately 600,000 ha in Turkey, including extremely degraded stands and bare karstic land that was previously covered by this species. Therefore, efforts to protect existing forests and promote natural regeneration of this endangered tree species were undertaken in recent years. In addition, reforestations were carried out on bare karstic lands to expand the population of Lebanon cedar in Turkey. During disease surveys, carried out in October 2009 in the Mt. Dedegül Region of the western Taurus Mountains (37°36′54″N, 31°20′00″E), a dieback of lower branches and young plants of *C. libani* was observed at 1,700 to 1,885 m above sea level. The disease often occurred in scattered patches and was most evident near the timberline. Needles, shoots, and twigs of affected trees or entire small trees were covered or completely enmeshed in silky, shining, blackish brown mycelial felts. Symptoms resembled those of brown felt blight, also known as black snow mold, caused by *Herpotrichia juniperi* and *Neopeckia coulteri* on various other conifer species. For fungal isolation and identification, 18 twig samples from 14 different *C. libani* trees were collected. Two colonized needles from each twig were transferred to water agar (16 g $liter^{-1}$ of agar and 0.1 g $liter^{-1}$ of streptomycin) and incubated at 4°C for at least 8 days in the dark. Single hyphal-tip cultures were then established from only one of the developing colonies per twig and transferred to 1.5-ml microcentrifuge tubes containing 500 µl of potato dextrose broth. DNA extraction, directly from the mycelium, was performed after 20 days (3). DNA was amplified using primer pair ITS1 and ITS4 and sequenced. Sequences of two representative fungal isolates from *C. libani* were deposited in GenBank (HM853976 and HM853977). Comparison of the 18 internal transcribed spacer sequences obtained from *C. libani* showed 99 to 100% nucleotide identity with those of reference strains of *H. juniperi* from GenBank and variation among the 18 sequences was <1%, which is within the limits reported in a previous study. To our knowledge, this is the first report of *C. libani* as a new host of *H. juniperi*. Thus, brown felt blight is considered to have a significant impact on regeneration of *C. libani* as well as on the survival and growth of seedlings and young trees in the study area. [F. Oskay, A. Lehtijärvi, H. T. Dogmuş-Lehtijärvi and E. Halmschlager (Turkey & Austria). Plant Disease, 95(2): 222, 2011].

***Exserohilum monoceras,* Newly Reported on Late Watergrass in Turkey.** *Echinochloa* species are major weeds in rice-cropping systems and are among the most noxious weeds in the world. Throughout the world, *Echinochloa oryzicola* Vasing, (late watergrass) is one of the most important and serious weed species of this genus. In September 2010, punctiform, purplish dark brown leaf spots were observed on leaves and sheaths of *Echinochloa oryzicola* in a rice field in Terme, Turkey (41°13.412′N, 36°56.248′E). Individual lesions ranged from 1 to 3 mm in diameter. Infected leaf and sheaths were surface disinfected for 1 min in 1% NaOCl, plated on potato dextrose agar (PDA), and incubated at 25°C. Colonies of pure cultures on PDA turned to dark green colonies with increasing age. Conidia were 87 to 147 (120) × 15 to 21 (19) μm (n = 50), 6 to 10 pseudoseptate, straight or slightly curved, fusiform, tapering gradually toward the base, pale-to-dark straw colored, smooth, with a small protruding plenum-type hilum. The fungus was identified as *Exserohilum monoceras* (Drechsler) Leonard & Suggs based on its micromorphology and cultural features. Conidia were harvested from 3-week-old cultures grown on PDA by brushing the surface of the colonies with a small paint brush, suspending the conidia in sterile distilled water and filtering through cheesecloth for pathogenicity tests. Conidia were then diluted in sterile distilled water plus 0.1% polysorbate 20 to a concentration of 1×10^6 conidia/ml. Leaves and stems of *Echinochloa oryzicola* at the three-leaf stage were spray inoculated with 10 ml of this aqueous suspension per plant. Three inoculated plants and three noninoculated plants were placed in a dew chamber at 18 to 22°C with continuous dew, and after 48 h, plants were moved to a greenhouse bench. Symptoms, similar to those originally observed in the field, began to appear on the leaf and sheaths approximately 10 days later and *E. monoceras* was reisolated, successfully completing Koch's postulates. No symptoms developed on the control plants. *E. monoceras* has also been reported on *Echinochloa oryzicola* in Japan (3). To our knowledge, this is the first report of leaf spot on *Echinochloa oryzicola* caused by *E. monoceras* in Turkey where the fungus may have potential as a biological control agent. [I. Erper, H. Mennan, U. Budak and E. Kaya Altop (Turkey). Plant Disease, 95(4): 497, 2011].

First Report of Leaf Blotch on Sorghum Caused by *Bipolaris spicifera* in Turkey. In July 2009, a leaf blotch disease was observed on sorghum in Sakarya Province, Turkey. Disease incidence and severity were rated at 45% and 25 to 75%, respectively. Typical symptoms included elliptical, straw-colored, necrotic lesions with darker margins. The lesions eventually coalesced, resulting in drying of leaves. A fungus was isolated from the lesions on potato dextrose agar (PDA) incubated under near ultraviolet light for 12 h daily at 22°C for 2 weeks. Flexuous conidiophores of the fungus were solitary or produced in small groups. They were geniculate with numerous well-defined scars, medium to dark brown, ≥300 μm long, and 4 to 9 μm thick. Five to eight or more conidia were produced on the apices of the conidiophores. The conidia were straight, oblong or cylindrical, rounded at the ends, golden brown at maturity except for a small area just above the dark scar, pseudoseptate, and 20 to 31 × 7.5 to 12.5 μm (1). The causal fungus was identified as *Bipolaris spicifera* (Bain) Subram. (teleomorph *Cochliobolus spicifer* Nelson). The identification was confirmed with specific PCR primers

Bipol-1
F: 5′-CAGTTGCAATCAGCGTCAGT-3′,
R: 5′-AAGACAAAAACGCCCAACAC-3′,
Bipol-2
F: 5′-GTGTTGGGCGTTTTTGTCTT-3′,
R: 5′-CCTACCTGATCCGAGGTCAA-3′,
Bipol-3
F: 5′-GATGAAGAACGCAGCGAAAT-3′,
R: 5′-AAGACAAAAACGCCCAACAC-3′

These primers were designed by the authors using Primer3 primer design software and sequences of *B. spicifera* found in GenBank. PCR products were amplified from nuclear DNA of the cultured fungus and were sequenced after cleaning with a Beckman 8000 CEQ DNA sequencer. Sequences amplified using Bipol-1 and Bipol-2 showed 99 to 100% similarity with *B. spicifera* sequences from GenBank. The DNA sequence amplified using Bipol-2 was deposited in GenBank (Accession No. HQ538774). *B. spicifera* has been reported previously as pathogenic in Africa, North and South America, Asia, Australia, Oceania, and the West Indies on *Agrostis*, *Avena*, *Cymbopogon*, *Cynodon*, *Dactylis*, *Desmostachya*, *Eleusine*, *Holcus*, *Hordeum*, *Oryza*, *Panicum*, *Pennisetum*, *Phleum*, *Poa*, *Saccharum*, *Sorghum*, *Triticum*, and *Zea* spp. (3). Pathogenicity tests were conducted on sorghum (*Sorghum bicolor* (L.) Moench) and *Sorghum* × sudangrass hybrid cultivars. From PDA cultures, conidia were collected in sterile distilled water with a concentration of 3% Tween 20. Twenty-five plants (five per pot) were inoculated by spraying the conidia (10^5 ml^{-1}) onto 21-day-old plants, which were then maintained at 25 ± 2°C in a greenhouse following 48 h in a humid chamber. The test was repeated once. Control plants were sprayed with sterile distilled water. Typical

symptoms (2) were obtained from all inoculated plants 7 days after inoculation. No symptoms developed on the control plants. The pathogen was reisolated from inoculated leaves to fulfill Koch's postulates. To our knowledge, this is the first report of *B. spicifera* on sorghum in Turkey. [F. Ünal, E. B. Turgay, A. F. Yıldırım and C. Yüksel (Turkey). Plant Disease, 95(4): 495, 2011].

RESEARCH HIGHLIGHTS

EGYPT

Direct effect of biocontrol agents on wilt and root-rot diseases of sesame. In Egypt, sesame cultivation is subject to attack by wilt and root-rot diseases caused by *Fusarium oxysporum* f.sp. *sesami* (Zap) Cast. and *Macrophomina phaseolina* (Maubl) Ashby causing losses in quality and quantity of sesame seed yield. *Bacillus subtilis* and *Trichoderma viride* isolates which were isolated from sesame rhizosphere were the most effective to antagonise fungal pathogens, causing high reduction of hyphal fungal growth. *Trichoderma viride* was found to be mycoparasitic on *Fusarium oxysporum* f.sp. sesami and *M. phaseolina* causing morphological atternation of fungal cells and sclerotial formation. In general, *Bacillus subtilis*, *T. viride*, avirulent *Fusarium oxysporum* isolate and *Glomus* spp. (Amycorrhizae) significantly reduced wilt and root-rot incidence of sesame plants at artificially infested potted soil by each one or two pathogens. Data obtained indicate that *Glomus* spp significantly reduced wilt and disease severity development on sesame plants followed by *T. viride*. Meanwhile, avirulent *Fusarium oxysporum* isolate followed by *Glomus* spp. were effective against root-rot disease incidence caused by *M. phaseolina*. *Glomus* spp. followed by *B. subtilis* significantly reduced wilt and root-rot disease of sesame plants. All biotic agents significantly reduced *F. oxysporum* f.sp. *sesami* and *M. phaseolina* counts in sesame rhizosphere at the lowest level. *Glomus* spp. and the avirulent isolate of *F. oxysporum* eliminated *M. phaseolina* in sesame rhizosphere. Meanwhile *T. viride* was the best agent at reducing *F. oxysporum* at a lower level than other treatments. Application of VA mycorrhizae (*Glomus* spp.) in fields naturally infested by pathogens significantly reduced wilt and root-rot incidence and it significantly colonised sesame root systems and rhizospheres compared to untreated sesame transplanting. I. S. Elewa, M. H. Mostafa, A. F. Sahab, E. H. Ziedan (Egypt). [Archives of Phytopathology and Plant Protection, 44 (5): 493 – 504, 2011].

Effectiveness of plant extracts on suppression of damping-off and wilt diseases of lupine (*Lupinus termis* Forsik). The aim of this study was to evaluate water and organic solvent of plant extracts for protection of lupine plants against damping-off and wilt diseases caused by *Fusarium oxysporum* f. sp. *lupini*, *F. oxysporum* f. sp. *lupini* Snyder & Hansen was isolated from diseased lupine roots collected from different locations of Minia, Assiut and New Valley governorates. Water leaf extracts *of Calotropis procera, Nerium oleander, Eugenia jambolana, Citrullus colocynthis, Ambrosia maritime, Acacia nilotica* and *Ocimum basilicum* and fruit extracts of *C. colocynthis, C. procera* and *E. jambolana* reduced damping-off and wilt diseases caused by *F. oxysporum* f. sp. lupini. Water extracts of *E. jambolana* leaves, *C. colocynthis* fruits and N. oleander leaves were the most effective ones for controlling such diseases. In contrast, *A. nilotica* and *O. basilicum* extracts were the least effective ones. Organic solvent extracts of tested plants reduced damping-off and wilt diseases than water extracts. Butanolic and ethereal extracts were highly effective in reduction of diseases than the other tested extracts. Under field conditions, during winter growing seasons 2008/09 and 2009/10, ethereal and butanolic extracts of *N. oleander* and *E. jambolana* leaves and *C. colocynthis* fruits significantly reduced the percentage of wilt severity as well as improved growth parameters (plant height, number of branches, pods and seeds per plant) and increased seed index, total seed yield/hectare compared with control treatment, while protein content in seeds was not effected. In conclusion, our study demonstrated that some plant extracts can be used for biocontrol of lupine damping-off and wilt diseases. [M.F. Abdel-Monaim, K.A.M. Abo-Elyousr and K.M. Morsy (Egypt). Crop Protection, 30: 185-191, 2011].

Management of the root-knot nematode *Meloidogyne incognita* on tomato with combinations of different biocontrol organisms. The nematicidal effect of *Pseudomonas fluorescens, Paecilomyces lilacinus, Pichia guilliermondii* and *Calothrix parietina* singly or in combination was tested against root-knot nematode, *Meloidogyne incognita*. Treatments with *P. fluorescens* and *P. lilacinus* caused mortality of M. incognita as 45% and 30% of juveniles after 48 h of exposures, respectively compared to water control in vitro. Under greenhouse conditions, all treatments reduced the disease severity and enhanced plant growth compared to untreated control. Application of *P. fluorescens*, *P. lilacinus* and *P. guilliermondii* Moh

10 was more effective compared to *C. parietina*. Therewas a negative interaction between *C. parietina* and either *P. lilacinus* or *P. guilliermondii*. Fresh and dry weight of shoots and roots of plants were significantly reduced as a result of infection with M. incognita, however application of biocontrol agents singly or in mix recovered this reduction. Moreover, they enhanced the growth parameters compared with the control. Our results proved that application of different biocontrol agents (*P. fluorescens, P. lilacinus* and *P. guilliermondii*) not only has a lethal effect on nematode, but also enhances the plant growth, supplying many nutritional elements and induction the systemic resistance in plants. Presence of *C. parietina* as a soil inhabitant cyanobacterium could antagonize biocontrol agents leading to the reduction of their practical efficiency in soil. [Mohamed Hashem and Kamal A. Abo-Elyousr (Egypt). Crop Protection, 30: 285-292, 2011].

IRAN

Molecular genosystematic and physiological characteristics of fluorescent pseudomonads isolated from the rice rhizosphere of Iranian paddy fields. The great progress achieved in the use of molecular genosystematics permits the study to solve many problems of specificity in the relationship between plant and microbial population of the rhizosphere. In this study, the plant growth promoting properties (Indolile eacetic acid production, phosphate solubilization and siderophore production) and genetic diversity of isolated *Pseudomonas* strains were examined. Bacterial strains were isolated from the rice rhizosphere of paddy fields in three Northern Provinces (Mazandaran, Gollestan and Guillan) of Iran. Our studies revealed that pseudomonads have plant growth promoting properties. Isolated strains showed high ability of IAA production, phosphate solubilization and siderophore production, while genotyping analysis showed that pseudomonads isolated from the rhizosphere of rice are genetically diverse. Nevertheless, the strains were distributed into 11 genotypes, including five groups of fluorescent pseudomonads. [Mahmoud Reza Ramezanpour, Yuri Popov, Kazem Khavazi and Hadi Asadi Rahmani (Iran & Armenia). African Journal of Agricultural Research, 6(1) :145-151, 2011]

Susceptibilities of two populations of *Aphis gossipii* Glover to selected insecticides. Two populations of *Aphis gossypii* were collected from cotton and melon crops treated with insecticides to control this aphid species. The susceptibility of both aphid populations to Pymetrozine, Pirimicarb, Oxydemeton-methyl and Imidacloprid was evaluated using leaf deep bioassays in laboratory which were commonly used to control this aphid on both crops. Results showed that LC_{50} values of these insecticides against clones of cotton aphid were 452, 1427, 1810 and 209 ppm, respectively. LC_{50} values of the above mentioned pesticides against clones of melon aphid were 625, 688, 523 and 125 ppm, respectively. Lc_{50} data showed that aphids reared on melon was 2.07, 1.6 and 3.4 times more susceptible than cotton aphids to Pirimicarb, Imidaclopride and Oxydemeton-methyl and 1.4 times more resistant to Pymetrozine, respectively. In conclusion, it has been shown that clones of cotton aphid is on average 3.4-fold less susceptible to Oxydemeton- methyl, 2-fold less susceptible to Pirimicarb, 1.6-fold less susceptible to Imidacloprid and nearly 0.7-fold more susceptible to Pymetrozine than clones of melon aphid. There was little difference in susceptibility to Pymetrozine between the two populations. It is also suggested that continuous resistance monitoring should be conducted on a regional scale to identify the efficiency of compounds which are applied against this insect species. [H. Tabacian, S. Ravan and Ali R. Bandani (Iran). African Journal of Biotechnology, 10(4): 670-674, 2011].

Assessing hygienic behavior and attraction to *Varroa* mite (Acari: *Varroidae*) in Iranian honey bee (*Apis. mellifera meda*). In the current study, the hygienic behaviors of 5th instar larva of Iranian honeybees (*Apis mellifera. meda*) were investigated. The results of hygienic evaluation demonstrated that 35% of Iranian honeybees are hygienic. For more research, different levels of hygienic behaviors were used as a treatment and then the selected 5th instar larva were transferred to fundamental colonies with 10 to 12 % infestation. Three days later, the number of female *Varroa* in the capped cells were counted as attraction criteria for each treatment separately. The result demonstrated that hygienic colonies were fantastic because of their great interest for the least attraction. Moreover, the apparent correlation between resistant traits and performance traits exhibited that there are no significant relationship amongst resistance traits and performance traits. The relationship between uncapping and removing (which measured in the same recording day) was relatively high (>0.90). Furthermore, the correlation between hygienic behavior and attraction traits was negative so that the correlation between attraction and removing within 48 h after pouring liquid nitrogen was -0.86. The negative correlation between 2 major resistance traits

(hygienic behavior and attraction traits) in the breeding stock deems that selection for resistance against *Varroa* mite and improved performance traits may be possible in the Iranian honeybees. Despite, it is believed that in the breeding stock for determining the best selection strategy, other resistant mechanisms must be evaluated. [Javad Najafgholian, Abbas Pakdel, Gholamhosein Thahmasbi and Gholamali Nehzati (Iran). African Journal of Biotechnology, 10(6): 1011-1021, 2011].

JORDAN

Antifungal Effectiveness of Potassium Sorbate Incorporated in Edible Coatings Against Spoilage Molds of Apples, Cucumbers, and Tomatoes during Refrigerated Storage. Predominant spoilage molds of fresh apples, cucumbers, and tomatoes stored at 4 °C were isolated and examined for resistance to potassium sorbate (PS) incorporated in polysaccharide edible coatings. The isolated molds were *Penicillium expansum*, *Cladosporium herbarum*, and *Aspergillus niger* from apples. *P. oxalicum* and *C. cucumerinum* were isolated from cucumbers and P. expansum and *Fulvia fulva* from tomatoes. Guar gum edible coating incorporated with PS was the most effective mold inhibitor, significantly ($P < 0.05$) reducing the isolated spoilage molds for 20, 15, and 20 d of storage at 4 °C on apples, cucumbers, and tomatoes, respectively. PS incorporated into pea starch edible coating was less effective and selectively inhibited the isolated mold species, causing significant ($P < 0.05$) reduction in mold on apples, cucumbers, and tomatoes counts for 20, 10 to 15, and 15 to 20 d of storage at 4 °C, respectively. The isolated mold species exhibited different resistances to PS incorporated in the edible coatings. The greatest inhibition (2.9 log CFU/g) was obtained with *C. herbarum* on apples and the smallest (1.1 log CFU/g) was with *P. oxalicum* on cucumbers and the other isolated mold species exhibited intermediate resistance. The coatings tested, in general, inhibited molds more effectively on apples than on tomatoes and cucumbers. Addition of PS to pea starch and guar gum, edible coatings improved the antifungal activity of PS against isolated spoilage molds on apples, cucumbers, and tomatoes. PS inhibition was most effective against *C. herbarum* on apples and least effective against *P. oxalicum* on cucumbers. G. F. Mehyar, H. M. Al-Qadiri, H. A. Abu-Blan, B. G. Swanson (Jordan). Journal of Food Science, 76 (3): 210-217.

OMAN

Etiology and characterization of cucumber vine decline in Oman. A long-term study was conducted between 2000 and 2009 to characterize the incidence, progress and causal agents of cucumber vine decline in Oman. A survey in 175 different greenhouses showed that disease incidence levels range from 0 to 50%, with the highest levels of mortality being in the hotter seasons. Detailed temporal disease increase data from 24 different greenhouses showed mortality progress consists of two phases. The first phase is characterized by attack of young seedlings (<3 weeks old), resulting in damping-off disease. The second phase was characterized by re-appearance of symptoms and plant death (vine decline) during the fruit setting period, 35e50 days after transplanting. Isolations from 148 declining adult cucumber plants yielded *Pythium aphanidermatum* (80%), *Pythium spinosum* (13%), *Fusarium equiseti* (12%), *Fusarium solani* (8%), *Rhizoctonia solani* (5%) and one isolate each of *Trichoderma hamatum* and *Bionectria* sp. *P. aphanidermatum*, *P. spinosum*, *R. solani* and *F. solani* were found to be pathogenic on cucumber, with *P. aphanidermatum* being the most aggressive. This appears to be the first report of association of *P. spinosum* with vine decline in greenhouse cucumbers and the first report of the high susceptibility of adult cucumber plants to vine decline during the initial period of fruit setting. In addition, this is the first report of association of *R. solani* and *F. solani* with declining adult cucumber plants in Oman and the first report of the occurrence of T. hamatum and Bionectria species in the country. [A.M. Al-Sadi, F.A. Al-Said, K.S. Al-Kiyumi, R.S. Al-Mahrouqi, I.H. Al-Mahmooli and M.L. Deadman (Oman). Crop Protection, 30: 192-197, 2011].

PAKISTAN

Studies on the immature stages and burrow excavating behavior of *Schizodactylus monstrosus* (Drury) (Grylloptera: Gryllodea: Schizodactylidae) from Sindh, Pakistan. The biology of nymphal stages and life habits of the *Schizodactylus monstrosus* (Drury) were investigated in this study that was carried out between 2004 and 2007 in the left bank of River Indus Sindh province. The study showed that *S. monstrosus* which is a nocturnal and voracious carnivorous insect, passed through 9 nymphal stages, took 1 year to complete its developmental

period, though the female laid a total of 23.10 ± 3.66 eggs at 14.05 ± 1.85 cm depth of the soil. The burrow habit and food preferences of the cannibalistic species of S. *monstrosus* were also investigated. **[**Sabir Ali Channa, Riffat Sultana and Muhammad Saeed Wagan (Pakistan.). African Journal of Biotechnology, 10(12): 2328-2333, 2011].

SAUDI ARABIA

The gene expression of caspasses is up-regulated during the signaling response of *Aedes caspius* against larvicidal bacteria. Our current knowledge on the key molecular mechanisms and cognate signaling transduction, by the d-endotoxin-mediated mosquitoticidal effects, associated with exposure to *Bacillus thuringiensis* (*Bt*) and *Bacillus sphaericus* (*Bs*), is limited. Moreover, this observed mosquitocidal activity that is related to program cell death is largely unknown. Therefore, in an attempt to answer this question, the current study was primarily sought to provide evidence as to the molecular mechanism of mortality in *Bt/Bs* infected *Aedes caspius* mosquito larvae. Thus, the impact of *Bt* and *Bs* treatment on the expression of some selected apoptosis-related caspase genes in *A. caspius* mosquito larvae was investigated, via quantitative reverse-transcriptase PCR (qRT-PCR). Mosquito larvae were collected from natural water niches. Larvae were grown to adult stage and were subsequently identified as *A. caspius* at Natural History Museum, London, UK. Remarkably, light and transmission electron microscopy studies of the midgut epithelial tissues revealed that both *Bt* and *Bs* brought about significant histopathological effects. Moreover, this treatment resulted in severe destruction at the sub-cellular organelle level for the mitochondria. Interestingly, qRT-PCR studies revealed that the treatment of *A. caspius* mosquito larvae with both *Bt* and *Bs* caused a significant up-regulation in the transcription level of all caspase genes under study, namely: *CASPS17*, *CASPS18*, *CASPS19*, *CASPS20* and *CASPS21*. The results are discussed in the light of our current understanding of the signaling transduction pathway of apoptosis in insects and mosquitoes and the putative role of caspases gene expression in response to the treatment of *A. caspius* mosquito larvae with larvicidal bacteria. [Abdulaziz A. Al-Roba, Mourad A. M. Aboul-Soud, Ashraf M. Ahmed and Abdulaziz A. Al-Khedhairy (Saudi Arabia & Egypt). African Journal of Biotechnology, 10(2): 225-233, 2011].

SUDAN

Effect of biocontrol agent Bacillus amyloliquefaciens and 1-methyl cyclopropene on the control of postharvest diseases and maintenance of fruit quality. Efficacy of biocontrol agent Bacillus amyloliquefaciens PPCB004 was evaluated on the control of anthracnose and Phomopsis rot in 'Solo' papaya pre-treated with 1-methyl cyclopropene (100 ml) (1-MCP) during storage. This treatment was compared to the untreated control, commercial treatment (washing in chlorinated water), stand alone 1-MCP and PPCB004 treatment. Although fruit pre-treated with 1-MCP delayed the ripening (100% yellow) after cold storage by 9-10 d, it showed higher incidence and severity of anthracnose and phomopsis rot than the fruit subjected to commercial treatment. Application of PPCB004 after 1-MCP pre-treatment (1-MCP + PPCB004) reduced the anthracnose and phomopsis incidence and severity after cold storage (10ºC, 85% RH for 14 d) and ripening at 25ºC. The 1-MCP + PPCB004 treatment helped to retain the fruit firmness, overall quality and uniform yellow skin (100%) and flesh colour after ripening. The PPCB004 was effectively recovered from stand alone PPCB004 and 1-MCP + PPCB004 treated fruit after cold storage and ripening. The PPCB004 population showed an increase by 1 log units after ripening in 1-MCP + PPCB004 treated fruit. After ripening the recovery of PPCB004 population was higher (0.7 log units) in 1-MCP + PPCB004. The total recovery of fungal population on the fruit surface after ripening was lower in 1-MCP þ PPCB004 and stand alone PPCB004 treated fruit. It can be concluded that application of *B. amyloliquefaciens* PPCB004 with 1-MCP pretreated papaya (at 25-30% skin yellow stage) can significantly reduce disease incidence associated with 1-MCP treatment. This treatment has the potential for commercial application in the 'organic' papaya industry. [Mohamed Salia Osman, Dharini Sivakumar and Lise Korsten (Sudan & South Africa), Crop Protection, 30: 173-178, 2011].

TUNISIA

Molecular Genetic Diversity in Populations of *Fusarium pseudograminearum* from Tunisia. *Fusarium pseudograminearum* is one of the major pathogens causing crown rot of wheat in the semi-arid and arid areas in Tunisia. In this study, the molecular diversity of 74 isolates of *F. pseudograminearum* representing three populations

from Tunisia and a set of isolates from the world collection was investigated. The potential mycotoxin-producing ability was tested by PCR using primer pairs specific for the *Tri3*, *Tri7* and *Tri13* genes. Results indicated that all the isolates are potentially DON and/or 3-AcDON producers. The mating-type idiomorphs were identified using diagnostic PCR primer for *MAT1-1* and *MAT1-2*. Both mating types were recovered from the same region and in some cases from the same field. Restriction analysis of the nuclear ribosomal DNA (nrDNA) intergenic spacer region (IGS) revealed 11 haplotypes, five of which were identified in the world collection. The analysis of population structure using the combined IGS and MAT data revealed that the total gene diversity (H_T= 0.108) was mostly attributable to diversity within populations (H_S= 0.102) and that the genetic differentiation among the four populations was low (G_{ST}= 0.09). The analysis of molecular variance (AMOVA) showed that 15% of the variability was between the Tunisian populations and the world collection. These findings indicate that quarantine measures should be in place to limit the introduction of new populations of *F. pseudograminearum* into Tunisia. [Samia Gargouri, Imène Mtat, Lobna Gargouri Kammoun, Mouldi Zid and Mohamed Rabeh Hajlaoui (Tunisia). Journal of Phytopathology, 159(4): 306–313, 2011].

TURKEY

Effect of different pesticide application methods on spray deposits, residues and biological efficacy on strawberries. In agricultural food production, positive results can be obtained by using appropriate pesticides through the application of appropriate methods. In this study, we aimed to determine the effects of different spraying methods on spray deposits and drift, pesticide residues and biological efficacy on strawberries. For this purpose, strawberries were sprayed with dicofol by broadcast and band spraying. The effectiveness of different application methods was studied on 09 May, 2007 and 16 April, 2008. Broadcast sprayings were applied via hollow cone nozzles (HC) and air-assisted spinning cage nozzles (ASC). Band spraying was applied via flat fan nozzles (FF). Pesticide deposits on leaf surfaces, ground, drift and pesticide residues on strawberries were analyzed with Gas Chromatography/Electron capture detector (GC/ECD). Strawberries were analyzed based on dicofol residues up to 6 days after spraying. The results obtained showed that the highest pesticide deposits on leaf surfaces and also biological efficiency were obtained with FF in 2007 and 2008. The lowest pesticide deposits on ground were obtained by HC and the highest deposit of drift was obtained by ASC in 2007 and 2008. According to Commission Directive 2000/42/EC, the MRL's of dicofol on strawberry is 0.02 mg/kg. In this study, residues on strawberries for all types of nozzles were below the suggested maximum residue level (MRL) of dicofol by Commission Directive 2000/42/EC in 2007 and 2008. [Nigar Yarpuz-Bozdogan, Ekrem Atakan, Ali Musa Bozdogan, Huseyin Yilmaz, Nebile Daglioglu, Tunahan Erdem and Ebru Kafkas (Turkey). African Journal of Agricultural Research, 6(3) : 660-670, 2011].

Mite (Acari) fauna of some cultivated plants from Kahramanmaraş, Turkey. Surveys were conducted to identify mite (*Acari*) species from cultivated plants in Kahramanmaraş, Turkey. Phytophagous and predatory mite species on vegetables and fruit trees were collected during 1997–2000. Phytophagous mites, *Tetranychus turkestani* (Ugarov and Nikolski) and *Tetranychus cinnabarinus* Boisduval, were obtained from eggplant, bean, and cucumber. Predatory mites *Phytoseius finitimus* Ribaga and *Amblyseius andersoni* (Chant) (Acari: Phytoseiidae) were identified from eggplant and cucumber, respectively. Predatory mite species from mixed fruit orchards belong to the family Phytoseiidae. These species were named *Typhlodromus (Anthoseius) bagdasarjani* (Wainstein and Arutunjan), *Euseius finlandicus* Oudemans, *Kampimodromus aberrans* (Oudemans), *Paraseiulus soleiger* (Ribaga), *Paraseiulus subsoleiger* Wainstein, *Paraseiulus triporus* (Chant and Yoshida-Shaul), *P. finitimus* on grape, quince, walnut, mulberry, persimmon, peach, and pomegranate; *Typhlodromus (Anthoseius) intercalaris (Livshitz and Kuznetzov*) on fig. *Typhlodromus* (A.) *bagdasarjani* and *E. finlandicus* were also found on the ornamental plant *Ipomoea indica* (Burman) Merrill (Convolvulaceae). *Tydeus californicus* (Banks) (Tydeidae) was reported from an unknown host. The predatory mite, *E. finlandicus* was the most common phytoseiid species in orchard trees. [Tülin Özsisli and Sultan Çobanoğlu (Turkey). African Journal of Biotechnology 10: 2149-2155, 2011.

Characterizing races of *Meloidogyne incognita, M. javanica* and *M. arenaria* in the West Mediterranean region of Turkey. A total of 95 samples of *Meloidogyne incognita* (60), *Meloidogyne javanica* (28) and *Meloidogyne arenaria* (7) collected from West Mediterranean

region of Turkey were tested for identifying races of the nematodes using the North Carolina Differential Host Test. Races 2 and 6 of M. incognita were identified in 58 and 2 samples, respectively. Race 1 of *M. javanica* was identified from all 28 samples. Races 2 and 3 of *M. arenaria* were identified in 5 and 2 samples, respectively. The results also showed that two races of M. incognita and all races of *M. javanica* did not attack on pepper cv. California Wonder. These findings may contribute to improving resistant varieties and may also provide basis for developing a cropping system to control root-knot nematodes. [Zübeyir Devran and Mehmet Ali Sögüt (Turkey). Crop Protection, 30: 451-455, 2011].

❖ Some Plant Protection Activities of FAO and Other Organizations

DESERT LOCUST SITUATION

General Situation during March 2011 Forecast until mid-May 2011

Desert Locust infestations persisted during March in Sudan, Saudi Arabia, Egypt and Mauritania as a result of continued breeding. Substantial aerial and ground control operations were undertaken against hopper bands and swarms on the Red Sea coast in Saudi Arabia. Control operations declined in Sudan, and northwest Mauritania, but increased in Egypt. Smaller scale operations took place in southern Morocco and Algeria. If the remaining infestations in Saudi Arabia are not controlled, new adult groups and small swarms could form on the coast and move into the interior during April. From early May onwards, there is an increased risk that locusts could cross the Red Sea to Sudan. In Northwest Africa, adults and small groups in northwest Mauritania and southern Morocco could move to the southern side of the Atlas Mountains in Morocco and Algeria and lay eggs. Therefore, all efforts should be made to control current infestations in order to reduce migration to the spring breeding areas.

Western Region. Locust infestations declined during March in northwest Mauritania even though small-scale breeding continued for a sixth consecutive month, and hoppers and adults formed small groups that were treated (4,768 ha). Small adult groups and two small swarms appeared in adjacent areas of southern Western Sahara in Morocco and laid eggs. Control teams treated 314 ha. Limited control operations (290 ha) were also carried out in the central Sahara of Algeria against adult groups. A few adults were reported on the Tamesna Plains in northern Niger. During the forecast period, locust numbers are expected to continue to decline in Mauritania although limited hatching will occur in the northwest and in adjacent areas of Western Sahara. Locusts are likely to concentrate and form small groups in areas that remain green. There is a moderate risk that adults and small groups could move northwards to the southern side of the Atlas Mountains in Morocco and breed on a small scale.

Central Region. Aerial and ground control operations increased during March in Saudi Arabia where more than 30,000 ha of hopper bands and groups of hoppers and adults were treated on the central Red Sea coastal plains. Two small immature swarms formed and were treated in one area. Locust infestations declined on the Red Sea coast in Sudan due to on-going control operations (3,740 ha) against hopper bands and adult groups. Hatching continued on the southeast coast in Egypt and ground teams treated some 2,200 ha of hopper bands and groups of hoppers and adults. A few adults were seen in northern Oman and in crops on the Red Sea coast in Yemen. During the forecast period, small groups and swarms could form on the Red Sea coast in Saudi Arabia and move into the spring breeding areas of the interior of the country. There is an increased risk that a few groups or swarmlets could cross the Red Sea to Sudan from early May onwards.

Eastern Region. Low numbers of locusts appeared in the spring breeding areas in western Pakistan in early March. During the forecast period, small-scale breeding in areas of recent rainfall will cause locust numbers to increase slightly but remain low and below threatening levels. A similar situation is expected in adjacent areas of southeast Iran.

Desert Locust situation update 4 April 2011 Control operations continue in several key countries to prevent spring migration

Important Desert Locust infestations are present in Sudan, Saudi Arabia, Egypt and Mauritania as a result of continued breeding. The most serious infestations have been reported on the Red Sea coast in Saudi Arabia where substantial aerial and ground control operations are underway against hopper bands and swarms. Control operations are also in progress in southeast Egypt. On-going control operations in northwest Mauritania and on the Red Sea coast in Sudan recently began to decline. Smaller scale operations have taken place

in southern Morocco and Algeria. More than 40,000 ha were treated in March of which nearly 30,000 ha were in Saudi Arabia.

Elsewhere, low numbers of adults are present in northern Niger, on the Red Sea coast in Yemen, on the northern coast in Oman, and in the spring breeding areas in western Pakistan.

If the remaining infestations in Saudi Arabia are not controlled, new adult groups and small swarms could form on the coast and move into the interior during April. From early May onwards, there is an increased risk that locusts could cross the Red Sea to Sudan. In Northwest Africa, adults and small groups in northwest Mauritania and southern Morocco could move to the southern side of the Atlas Mountains in Morocco and Algeria and lay eggs.

All efforts should be made to control current infestations in order to reduce migration to the spring breeding areas during April

ALEPPO DECLARATION ON THE CONTINUING THREAT OF STRIPE RUST TO GLOBAL WHEAT PRODUCTION, ALEPPO, SYRIA, APRIL 2011

Scientists, research managers and donors from 31 countries met at the International Center for Agricultural Research in the Dry Areas (ICARDA), Aleppo, Syria, during 18-20 April to discuss the risk and potential implications of epidemics of yellow (stripe) rust disease on wheat production.

They warned that global food security could be severely threatened by stripe rust epidemics, and that the CWANA region (Central and West Asia and North Africa) was particularly vulnerable.

This Declaration is a call for sustained, coordinated responses to this threat. Action plans must be developed and implemented in the immediate future, with the full commitment of every stakeholder group: researchers, extension services, public and private sector seed agencies, farmer organizations, national policy makers, regional development fora, and international donors.

This Declaration is also a commitment to support the recently established global wheat rust reference center to provide scientific leadership of yellow rust research; share skill and resources to strengthen rust R&D at national level; and enhance capacity development, particularly in developing countries with a history of stripe rust epidemics.

We pledge to continue to work together to prevent wheat rust – particularly stripe rust – using a science-based approach; to integrate wheat rust management into agricultural development strategies; and to expand policy cooperation at regional and international levels.

We, the signatories to this Aleppo Declaration:

1. Pledge our support for strengthening the global rust reference laboratory, and upgrading skills and facilities at national and regional rust laboratories.
2. Urge Ministries of Agriculture in all countries to accelerate the replacement of rust-susceptible varieties by closely integrating research, seed production and dissemination, extension services and farm communities.
3. Recommend the appropriate use of fungicides as a key control measure during the period between detection of varietal susceptibility and availability of new resistant varieties to farmers.
4. Strongly recommend that formal networks be created (with adequate funding and clearly defined roles) for germplasm distribution, disease surveillance, and sharing of information.
5. Commit to greater efforts for capacity development across all rust disciplines including breeding, pathotyping, surveillance, seed production and socio-economics.
6. Strongly urge that epidemic forecasting systems be put in place as part of a regional strategy, to provide advice and support for action by Ministries of Agriculture.
7. Follow up on these recommendations will be through small group coordinated by ICARDA with involvement of BGRI, CIMMYT, FAO and three national programs selected in different regions where Stripe Rust is of economic importance.

❖ Short plant protection notes

- Endophytes *Pectobacterium atrosepticum* and *Pseudomonas* sp. promoted growth of potato shoots, but only Pseudomonas increased resistance to soft rot report A. Pavlo and associates at the University of Oulu, Finland, and the Institute of Molecular Biology and Genetics, Ukraine. (Biol. Control 56:43-49, 2011).
- A mixture of dimethylate-inhibiting fungicides that target different proteins are synergistic to *Fusarium graminearum* report X. Liu and associates at Zhejiang University, China, and Clemson University, SC. (Fungal Genet. Biol. 48:113-123, 2011)
- Citrus hybrid US-897 is highly tolerant to '*Candidatus* Liberibacter asiaticus' report U. Albrecht and K. D. Bowman at USDA-Hort., Fort Pierce, FL. (HortScience 46:16-22, 2011)
- A rapid PCR-RFLP method for identifying *Rhynchosporium secalis* and *R. commune* was developed by P. L. Zaffarano and associates at the Institute of Integrative Biology, Switzerland, and Australian National University. (Mycologia 103:195-202, 2011)
- A single dominant gene inheritance for *Wheat streak mosaic virus* in line CO960293-2 is readily transferable to adapted cultivars report H. Lu and associates at Texas AgriLife Research & Extension Center, Amarillo. (Crop Sci. 51:5-12, 2011)
- An RT-PCR assay can identify *Meloidogyne minor* using DNA from a single juvenile report M. Weerdt and associates at Plant Research International and Plantenziektenkundige Dienst, Wageningen, Netherlands; and Institute Agriculture and Fisheries Research, Belgium. (J. Phytopathol. 159:80-84, 2011)
- The yeast *Pichia guilliermondii* is a biocontrol agent for citrus blue mold depending on temperature and humidity report R. Lahiali and associates at University of Liege, Belgium; Université Ibn Tofail, and INRA-El Menzeh, Morocco; and AAFC-Saskatoon, Canada. (Biol. Contr. 56:217-224, 2011)

❖ GENERAL NEWS

A REGIONAL WORKSHOP ON "WHEAT RUST DISEASE"

A regional workshop on "Rust Diseases on Wheat and Ways to Counteract them" was conducted at ACSAD headquarters in Damascus, Syria during the period 9-10 March, 2011. The workshop was conducted under the auspices of the Syrian Minister of Agriculture, Dr. Adel Safar, and attended by 18 research scientists from Syria, Egypt, Algeria, Tunisia, Morocco, Yemen, Kuwait and ICARDA, as well as fifty six representatives and researchers from the Syrian ministry of Irrigation, departments of Plant Protection, Extension, Plant Production, the General Organization for Seed Multiplication and the General Federation of Farmers.

In four sessions, fourteen papers were presented, concentrating on the phenomenon of wheat crop epidemic with rust diseases and their adverse effects on the crop, their development and dissemination, economic effects and the effects of climate change on the occurrence of infection. Also discussed, the performance of ACSAD varieties and lines under the prevailing environmental conditions in the participating countries, in addition to discussing the experience of these countries in dealing with these diseases in terms of mitigating their effects and limiting their dissemination.

Representatives have also presented the national activities and breeding efforts to develop wheat varieties with substantial resistance to rust diseases and the integrated management to combat them. During the workshop, Lights were shed on the black stem rust race UG99 and the importance of breeding for resistant varieties of wheat using the information obtained from the infection source for this purpose.

ICARDA representative presented the Center's strategy of breeding for disease resistance in durum wheat.

ACSAD's head of the Cereal Program presented the Center's strategy for developing disease resistant varieties of wheat, and pressed on the importance of testing for resistance after each

selection cycle to ensure the inclusion of as many genes as possible in the new lines of wheat.

Important discussions about the subject followed after each presentation. The discussions were scientifically oriented aiming at interpretation, clarification and exchanging views and ideas in counteracting rust diseases on wheat.

At the end of the workshop, the following practical recommendations were agreed upon by the participants:

1. Boost the breeding efforts in developing varieties which are resistant to rust diseases, and make proper and quick decisions on the multiplication of already bred lines to replace those ones that showed sensitive reaction to any types of rust diseases.
2. Replace the old varieties that show virulence to rusts with new disease resistant and high yielding varieties of wheat.
3. Exchange information and genetic materials that are resistant to rust diseases among Arab countries to be tested in hotspots for the three rust diseases. ACSAD will act as the coordinator between the Arab countries in that regard.
4. Install monitoring and early warning systems as regards to rust-disease infections, and establish stations for monitoring and prediction.
5. Perform artificial rust infections under controlled environment instead of the field.

QUEEN'S AWARD TO RUSSELL IPM

Russell IPM, a UK based company has been granted the Queen's award for enterprise 2011 for its outstanding achievements in international trade. The award committee has specifically cited the exceptional efforts made by the company to educate, forewarn and assist in identification of the fast spreading pest *Tuta absoluta* across the Mediterranean countries over the past three years, a pest which caused serious damage to tomato crop across the region. From the start of the spread of *Tuta absoluta*, Russell IPM set up dedicated websites in five languages to provide a platform to share experience and knowledge between those who work in the field to ensure that professionals are better prepared for the arrival of this dangerous pest. Many seminars were organized in Morocco, Algeria, Libya, Egypt, Syria, Iraq, Saudi Arabia and Jordan. Russel IPM, a specialist company in the field of insect pheromones and other biological crop protection solutions, has been active in the field of integrated pest management over twenty years providing green crop protection solutions in over thirty countries."

❖ Arab Society for Plant Protection News

11TH ARAB CONGRESS OF PLANT PROTECTION

The Arab society of Plant Protection announces that the 11th Arab Congress of Plant Protection will be held in Cairo, Egypt during the period 4-8 November, 2012. The Congress will be hosted by Ain Shams University and Zagazig University. An Organizing Committee of distinguished plant protection scientists was established, and the first announcement for the congress will be distributed in June, 2011, which will contain all the details related to the congress including the secretariat address which will be hosted at Ain Shams University

❖ Publications

NEW BOOKS

New book gives a comprehensive overview of plant protection new style

HOOFDDORP, the Netherlands, March 15, 2011: Plant Protection New Style is a new book covering all aspects of modern plant protection. The book has been published in Dutch and English by Bio Collection in the Netherlands. Written by plant physiologist Theo Grent, the book provides a straightforward and comprehensive overview of numerous ways of how integrated pest control can be achieved in practice

The emphasis is on how integrated control strategies help to deal with diseases, pests and weeds in a variety of crops. Solutions for problems

in plants, caused by environmental conditions, are based on both experience and common sense. This book lists dozens of potential opportunities for straight application in the field. It offers alternative solutions for problems with diseases, pests and weeds. The described integrated control methods are derived from a variety of sources. Some originate from ages of folklore, while others are based on the latest scientific research. Many, however, are more a matter of common sense; Keep you plants healthy and they will avoid problems more effectively. The book includes a detailed description of pests and diseases. The introductory chapters describe the fundamental change in our concept of plant protection. Rather than attempt to eradicate bio-aggressors, the focus today is on integrated methods for improving plant health. In this new approach, biological plant protection plays a key role. What started as a trend to occasionally select non chemical strategies in the 80s, has now turned into an official plant protection policy in many countries. The author describes in detail the regulations governing the use of biological plant protection products. The difference in regulations between Europe and the US inspired him to write this book. Plant Protection New Style is therefore more than just a guide book on how to use various integrated control strategies for diseases, pests and weeds. With its detailed overview of active ingredients, brands and suppliers, the book is practically a compendium, the only comprehensive reference for integrated pest management.

Plant Protection New Style, *Theo Grent* Publisher: Bio Collection, Hoofddorp. The book can be ordered through the sites: www.bio-collection.com and www.plantprotection-newstyle.com

Detection of Genetically Modified Organisms and Biosafety for Food and Agriculture. Laboratory Manual for the Regional Training Course on "Detection of Genetically Modified Organisms and Biosafety for Food and Agriculture" ICARDA, Aleppo, Syria, 19-24 June 2010. (A. Abdul Kader, G. Abou Sleymane, F. Khatib, J. Saker, M. Baum). Jointly organized by: General Commission for Scientific Agricultural Research (GCSAR), International Center for Agricultural Research in the Dry Areas (ICARDA) and Food and Agriculture Organization of the United Nations (FAO).

SELECTED RESEARCH PAPERS

ENTOMOLOGY AND ACAROLOGY

Demography of greenbug, *Schizaphis graminum* (Rondani) (Hemiptera: Aphididae) on six barley cultivars. 2011. N. Tofangsazi; K. Kheradmand; S. Shahrokhi; A. A. Talebi (Iran). Archives of Phytopathology and Plant Protection, 44(5): 484 – 492

Evaluation of damage of some food commodities by larger grain borer-*Prostephanus truncatus* (Horn) {Coleoptera: Bostrichidae} and microbial composition of frass induced by the insect. 2011. A. A. Osipitan; K. Akintokun; S. Odeyemi; S. O. Bankole Archives of Phytopathology and Plant Protection: 44(6): 537 – 546.

Ecology and biology of scorpions in Palmyra, Syria. 2011. Shehab, A. H., Z. S. Amr and J. A. Lindsell (Syria). Turkish Journal of Zoology. 35(3): 333-341.

FUNGI

Genetic variability of mulberry (*Morus* spp.) germplasm against powdery mildew (*Phyllactinia corylea*) and identification of high resistance genotypes. 2011. M. D. Maji. Archives of Phytopathology and Plant Protection: 44(6): 513 –519.

Genotypic variability in maize for aflatoxin contamination. 2011. M. Shekhar; A. A. Khan; S. Kumar and R. Velazhahan. Archives of Phytopathology and Plant Protection: 44(6): 520-527.

NEMATODES

Controlling Root-Knot Nematode, *Meloidogyne incognita* infecting Sugar Beet using some Plant Residues, a biofertilizer, compost and Biocides. 2011. W. M. A.E. El-Nagdi, A. I. A. El Fattah. (Egypt). Journal of Plant Protection Research, 51 (2): 107-113.

RODENTS

Morphology and Distribution of the Indian Gerbil, *Tatera indica* (Hardwicke, 1087) (Rodentia: Gerbillinae) in Syria. 2011. Shehab, A. H., S. Ahmad and F. Samara (Syria). Zoology in the Middle East, 52: 3-10. http://www.kasparek-verlag.de/

PESTICIDES

Effect of herbicide Imazethapyr (pursuit™) on chickpea seed germination. 2011. M. Hoseiny-Rad; S. Jagannath (Egypt). Archives of Phytopathology and Plant Protection, 44(3): 224–230.

Efficacy of crude neem seed kernel oil (NSKO) in controlling the tree locust (*Anacridium melanorhodon melanorhodon* Walker), a serious pest of the gum Arabic producing tree (*Acacia senegal* L.

Willd.) in the Sudan. 2011. H.A. El Atta; I. M. Aref and M. Mohager (Sudan). Archives of Phytopathology and Plant Protection, 44(4): 373–380**.**

Effect of different pesticide application methods on spray deposits, residues and biological efficacy on strawberries. 2011. N. Yarpuz-Bozdogan, E. Atakan, A. M. Bozdogan, H. Yilmaz, N. Daglioglu, T. Erdem and E. Kafkas (Turkey). African Journal of Agricultural Research, 6(3): 660-670.

CONTROL

Comparative study on the potential of Malathion 57% and selected pesticide safe alternatives in reducing fruit flies infestation in the New Valley Orchards. (2011). F. A. Abdel-Galil; M. A. Amro; A. S. H. Abdel-Moniem; S. M. M. Gameel. Archives of Phytopathology and Plant Protection, 44(3): 231–241.

EVENTS OF INTEREST

2011

***07-08 June**

Climate Change and the Implications for Plant Science. The Science, the impacts and the options at the University of Guelph, Ontario, Canada.
www.plantscience.open.uoguelph.ca

***07-12 June**

11th World Congress on Parasitic Plants, Martina Franca, Italy.
Email: Maurizio.Vurro@ispa.cnr.it
http://tinyurl.com/yjyf5w4

***20-23 June**

2nd Entomophagous Insect Conference, Antibes, France
Email: Wajnberg@sophia.inra.fr
Http://tinyurl.com/2c5799s

***20-24 June.**

5th International Bacterial Wilt Symposium in Wuhan, China.
www.5thibws.com

*** 2-6 August**

The XV International Congress of Plant-Microbe Interactions in Kyoto, Japan.
http://mpmi2011.umin.jp/index.html

***7-11 August 2011.**

Asian Mycological Congress 2011 with 12th International Marine and Freshwater Mycology Symposium in Incheon, Korea.
http://www.amc2011.org

*** 21-25 August**

Scandinavian Society for Plant Physiology Congress in Stavanger, Norway.
www.spps.fi/cgibin/SPPS.pl

*** 11-14 September**

8th International Symposium on Mycosphaerella and Stagonospora Diseases of Cereals in Mexico City.
http://conferences.cimmyt.org/en/8th-international-symposium

*** 12-16 September**

Second Meeting of the International Phytoplasmologist Working Group (IPWG) in Neustadt an der Weinstra e (Germany).
www.ipwgnet.org

*** 26-30 September**

8th European Vertebrate Pest Management Conference. Berlin, Germany.
http://www.evpmc.org/

*** 02-07 October**

3rd International Symposium on environmental weeds &invasive plants (Intractable Weeds and Plant Invaders), Ascona, Switzerland.
Email: Christian.Bohren@acw.admin.ch
http://tinyurl.com/24wnjxo

*** 16-17 November**

Second Conference of the Near East Weed Science Society. The Near East Weed Science Society (NEWSS) tends to hold its second conference (the Second Conference of The Near East Weed Science Society) with cooperation of the local and international supporting parties during the period 16-19 November 2011 (Sunday-Wednesday) at the University of Jordan, Amman, Jordan. The conference will include sessions for presenting research papers, posters. Keynote speakers will be invited to address recent issues in weed science. For more information contact Dr. Barakat Abu Irmaileh, Faculty of Agriculture, University of Jordan, Amman 11942, Jordan, e-mail Barakat@ju.edu.jo You can also review announcements on the NEWSS site at: http://www.ju.edu.jo/sites/newss

*** 16-18 November**

Joint International Symposium on Management of Tuta absoluta. Maroc. EPPO/IOBC/FAO/NEPPO Joint International Symposium on Management of *Tuta absoluta*

*** 27-30 November**

The Fifth International Conference Plant Protection Research Institute. Giza, Egypt. All correspondence sent on behalf of the Preparatory committee; Prof. Dr. Khalil Gharib Al-Maliky, Plant Protection Research Institute 7 Nadi El-Seid St. – Dokki
Email: ppri1951@yahoo.com

2012

***21-25 May**

4th International Workshop for Phytophthora, Pythium, and Phytopythium. at University of Maryland, College Park, Maryland.
http://www.psla.umd.edu/faculty/Balci/workshop2011/index.cfm

***17-22 June**

VI International Weed Science Congress, Dynamic Weeds, Diverse Solutions, Hangzhou, CHINA.
Email: iwsc2012local@wssc.org.cn
www.iwss.info/coming_events.asp

***18-21 June**

8th International Workshop on Grapevine Trunk Diseases in Valencia, Spain**.**
www.icgtd.org/8IWGTD.html

***17–20 September.**

7th Australasian Soilborne Diseases Symposium in Fremantle, Western Australia**.**
www.asds7.org

2013

***18-22 February**

International Herbiside Resistance conference, Perth, Australia. Contact address: S. Powles, AHRI, School of Plant Biol., Univ. of Western Australia, 35 Stirling Hwy., Crawley, Perth 6009, WA, Australia.
Email: Stephen.Powles@uwa.edu.au

*** 25-30 August**

10th International Congress of Plant Pathology (ICPP2013), Beijing, China.
Email: president@cspp.org.cn
http://www.icppbj2013.org/

ACKNOWLEDGMENTS

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

Marwa GENENA (Egypt), Nada SALEM (Jordan), Nadjiyeh ZERMAN (Algeria), Majd JAMAL (Syria), Safaa KUMARI (Syria), Jamal MANDO (Syria), Faiz ISMAEL (Syria), Mohamad ALAAN (Syria), Sobhia AL ARABI (Syria), Faisal FARAWATI (Syria), Amal SAIDAWI (Syria), Maimona AL MASRI (Syria).