Disease Notes

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First Report of *Blumeriella jaapii* Teleomorph on Wild Cherry in Italy. T. Annesi, E. Motta, and E. Forti, Istituto Sperimentale per la Patologia Vegetale, Via C.G. Bertero 22, 00156 Rome, Italy. Plant Dis. 81: 1214, 1997; published on-line as D-1997-0805-01N, 1997. Accepted for publication 31 July 1997.

Leaf spot disease on wild cherry (*Prunus avium* L.) was frequently observed in plantations for timber production in central Italy. Acervuli and conidia of *Phloeosporella* (= *Cylindrosporium*) *padi* (Lib.) Arx were detected. Since the presence in Italy of its teleomorph, *Blumeriella jaapii* (Rehm) Arx (1), has never been reported, the life cycle of the pathogen was investigated. In the autumn of 1996, in some diseased leaves in different locations, microconidia were observed in the same acervuli that produced macroconidia. Also, in a plantation near Rome, fallen leaves with dark, stromatic spots were present. Leaf samples were put into plastic net bags and laid onto the ground under the trees, to be observed after overwintering in the field. In March, fully developed apothecia were present on the lower leaf surface, containing asci and ascospores that matched the description of *B. jaapii*. To verify the capability of the ascospores produced in nature to infect the host, overwintered leaf fragments with mature apothecia were fixed to the underside of the lids of petri dishes, above healthy cherry leaves laid upside down on moistened filter paper. Uninoculated, healthy leaves kept in petri dishes served as control. Dishes were incubated at room light and temperature conditions. The ascospores were readily discharged and dark spots with hypophyllous or amphigenous acervuli of *P. padi* developed on infected leaves 20 days later. No symptoms were present in the control leaves. In conclusion, *B. jaapii* can complete its life cycle in wild cherries in Italy. The possibility of spring infection by ascospores should be considered in disease management programs.

Reference: (1) S. Kaszonyi. Acta Phytopathol. Acad. Sci. Hung. 1:93, 1966.

First Report of Alternaria Brown Spot of Minneola Tangelo in Turkey. Y. Canihos and A. Erkilic, Department of Plant Protection, Faculty of Agriculture, University of Cukurova, Adana, Turkey; and L. W. Timmer, University of Florida, CREC, 700 Experiment Station, Lake Alfred 33850-2299. Plant Dis. 81:1214, 1997; published on-line as D-1997-0805-02N, 1997. Accepted 1 August 1997.

Minneola tangelo, a hybrid of Dancy tangerine and Duncan grapefruit, is widely grown in Turkey for export to Europe. In 1995, 2,000 ha of diseased Minneola tangelo trees were observed in the Cukurova region. Ninety percent of orchards in this region were diseased but disease severity depended upon the location and the disease control strategies employed in each orchard. Symptoms were typical of Alternaria brown spot (1). Fruit symptoms included light brown, slightly depressed spots to circular and dark brown areas on the external surface. On leaves, symptoms ranged from small brown circular spots to irregular blighted areas with characteristic yellow halos. The apices of some young shoots were defoliated. Infected young fruit and leaves often dropped from the tree and the mature fruit were unmarketable due to lesions on the fruit. *Alternaria* was consistently isolated from diseased leaves and fruit on potato dextrose agar and produced dark brown mycelia and pigmented septate conidia similar to those described previously (1). Detached immature Minneola leaves were inoculated with aqueous conidial suspensions of 15 isolates and maintained in a chamber at near 100% relative humidity for 3 days at 26°C. Thirteen of these isolates caused necrotic lesions on the leaves similar to those observed in the field, i.e., dark, necrotic spots with necrosis extending outward on some veins. *Alternaria* was reisolated from all infected leaves. This is the first report of Alternaria brown spot of Minneola tangelo in Turkey.

Reference: (1) Z. Solel. Plant Pathol. 40:145, 1991.

Recent Outbreak of Fusarium Wilt of Basil in Florida. L. E. Datnoff and L. Z. Liang, University of Florida-IFAS, Everglades Research and Education Center, Belle Glade 33430; and R. L. Wick, Department of Plant Pathology, University of Massachusetts, Amherst 01003. Fla. Agric. Exp. Sta. Journal Ser. R-05867. Plant Dis. 81:1214, 1997; published on-line as D-1997-0808-01N, 1997. Accepted for publication 7 August 1997.

Symptoms of wilt, leaf chlorosis, leaf drop, and shoot and plant death were observed in commercial fields of basil (*Ocimmum basilicum* L.). Disease incidence ranged from 10 to 80% among individual fields. Initial isolations from infected stem tissue were made on water agar amended with streptomycin sulfate. Single-spore isolates transferred onto corn leaf agar were identified as *Fusarium oxysporum* Schlechtend.:Fr. f. sp. *basilicum* Dzidzariya. Pathogenicity tests were performed on 10-cm-tall basil plants, cv. Siam Queen, for three Florida isolates and one Massachusetts isolate. An inoculum concentration of 1×10^6 conidia per ml was applied to soil around the roots. Symptoms of wilt, external stem discoloration, and death of basil occurred after 14 days, and *F. oxysporum* f. sp. *basilicum* was reisolated from plants inoculated with all four isolates. Controls were disease-free. Identification of the isolates as *F. oxysporum* f. sp. *basilicum* was done with a set of DNA primers developed by Pan and Wick (2) for a 0.7-kb DNA fragment unique to this pathogen. This report confirms the existence of *F. oxysporum* f. sp. *basilicum* in Florida (1), and identifies this disease as a potential threat to commercial basil production.

References: (1) S. A. Alfieri et al. Diseases and Disorders of Plants in Florida. Bull. No. 14. Fla. Dept. Agric. Consumer Serv., 1993. (2) Z. Pan and R. L. Wick. Phytopathology 85:1559, 1995.

Cucumber Mosaic Virus, Tobacco Streak Virus, and Cucumber Mosaic Virus Satellite RNA Associated with Mosaic and Ringspot Symptoms in *Ajuga reptans* in Ohio. J. R. Fisher and S. T. Nameth, Department of Plant Pathology, Ohio Agricultural Research and Development Center, The Ohio State University, Columbus 43210. Plant Dis. 81:1214, 1997; published on-line as D-1997-0826-01N, 1997. Accepted for publication 22 August 1997.

Creeping bugleweed (*Ajuga reptans* L.) is a perennial ornamental commonly grown as a ground cover in temperate climates. Commercial samples of the *A. reptans* cultivars Royalty, var. Atropurpurea Bronze, Bronze Beauty, and Burgundy Glow showing mosaic and ringspot symptoms were tested for the presence of virus infection by direct antibody sandwich enzyme-linked immunosorbent assay (ELISA) and viral-associated double-stranded (ds) RNA analysis. Cucumber mosaic cucumovirus (CMV) was detected by ELISA and dsRNA analysis in symptomatic samples of all cultivars tested. ELISA values were considered positive if the absorbance values were twice the negative control. Negative control values were established with asymptomatic tissue of the cv. Bronze Beauty. Tobacco streak ilarvirus (TSV) was detected only by ELISA in symptomatic samples of all cultivars except Royalty. No dsRNA suggestive of TSV was detected. Alfalfa mosaic virus (AMV) was detected by ELISA and dsRNA analysis in symptomatic samples of all cultivars tested except Royalty and var. Atropurpurea Bronze. dsRNA analysis also indicated the presence of a low molecular weight, possible satellite (sat) RNA associated with all symptomatic and asymptomatic Royalty and var. Atropurpurea Bronze plants tested. Northern (RNA) blot analysis with a digoxigenin-labeled full-length clone of the (S) CARNA-5 (-) CMV satRNA (ATCC no. 45124) confirmed that the low molecular weight RNA associated with the Royalty and var. Atropurpurea Bronze cultivars was indeed CMV satRNA. Only AMV has been previously reported in *A. reptans* in the United States (1). This is the first report of CMV and its satRNA, as well as TSV, in *A. reptans* in the United States.

Reference: (1) W. T. Schroeder and R. Provvidenti. Plant Dis. Rep. 56:285, 1972.

(*Disease Notes* continued on next page)

Recent Outbreak of Stem Canker (*Diaporthe phaseolorum* var. *meridionalis*) of Soybean in Santa Fe, Argentina. R. Pioli, Fitopatologia, and S. Gattuso and D. Prado, Botanica, Facultad Cs. Agrarias, and A. Borghi, Facultad Cs. Bioquímicas y Farmacéuticas, Universidad Nacional Rosario, P.O. Box 14, 2123 Zavalla, Santa Fe, Argentina. Plant Dis. 81:1215, 1997; published on-line as D-1997-0812-02N, 1997. Accepted for publication 14 July 1997.

This disease was first noted in the area in February 1993 (2), when a soybean (*Glycine max* (L.) Merr.) disease survey was conducted in several localities of southern Santa Fe province, the core soybean region of Argentina. At that time, its incidence ranged from 5 to 8% in isolated fields. However, in March 1997, stem canker reached a dramatic 70 to 100% incidence, probably helped by the extensive use of susceptible cultivars, favorable climatic conditions, and inoculum availability from no-till fields. Observed symptoms on stems consisted of V-shaped longitudinal lesions at petiole insertion, with reddish brown margins and discolored centers, where the pycnidia of the anamorph *Phomopsis phaseoli* (Desmaz.) Sacc. *meridionalis* Morgan-Jones were found. The lesions coalesced and consequently the main stem and branches died. Foliage symptoms started as yellow blotches, later developing into interveinal chlorosis and necrosis. Perithecia of the teleomorph *Diaporthe phaseolorum* (Cooke & Ellis) Sacc. var. *meridionalis* F. A. Fernandez (1) were obtained from infected stems in several crop seasons. Once ripe, the ascospores were cultured on potato dextrose agar (PDA) acidified with lactic acid (0.2%), amended with streptomycin (100 mg/liter), and maintained in darkness at 20 to 25°C. Yellowish white colonies were obtained, later becoming tan and developing perithecia. Perithecia had a beak length of 868 ± 183 µm, neck width of 126.2 ± 17 µm, the asci of 36.7 ± 4.7 µm length and bicellular biguttulate ascospores of 10.2 ± 1 µm length and 3 ± 0.13 µm width. All features match the available descriptions of the pathogen (1). Pathogenicity trials were performed on seedlings of resistant and susceptible cultivars up to second trifoliar leaf stage; these cultivars were classified according to inoculations and field behavior. Plants were wounded with a scalpel in the cotyledonary node and inoculated with a 3-mm-diameter PDA mycelial plug, covered with vaseline. Control seedlings were either not wounded or similarly wounded and covered with vaseline but no PDA plugs were applied. Symptom development was observed within 4 days from inoculation in the top leaf, and in 7 days most seedlings of susceptible cultivars were dead. Resistant cultivars survived and showed only reddish discoloration in wounds. The control seedlings were symptomless and the pathogen was not isolated from them. Conversely, inoculated seedlings with visible symptoms consistently yielded *D. phaseolorum* var. *meridionalis* from stem sections at different distances from the inoculation point.When cultured on water agar, alpha conidia from pycnidia and ascospores from the perithecia were obtained.

References: (1) F. A. Fernandez and R. T. Hanlin. Mycologia 88:425, 1996. (2) R. N. Pioli et al. Comun. Biol. 11:156, 1993.

First Report of *Monosporascus cannonballus* on Melons in Saudi Arabia. R. S. Karlatti, F. M. Abdeen, and M. S. Al-Fehaid. National Agriculture and Water Research Center, Riyadh, Kingdom of Saudi Arabia. Plant Dis. 81:1215, 1997; published on-line as D-1997-0819-01N, 1997. Accepted for publication 7 August 1997.

In the late summer of 1996, a root rot and vine decline was noticed on greenhouse grown melons (*Cucumis melo* L.) at the National Agriculture and Water Research Center, Riyadh, Saudi Arabia. Melons were grown on sandy clay soil and peat moss was spot applied as organic manure. The pH of the soil was 7.8. Disease symptoms first appeared at early stage of fruit maturity of the crop. Diseased vines exhibited stunting, yellowing, and, at a late stage, complete collapse of the leaf canopy. The roots showed discoloration, discrete lesions on all root systems, and loss of secondary and tertiary feeder roots. Numerous perithecia were observed on the secondary and tertiary roots only. Each ascus contained one large spherical ascospore. The fungus was isolated on potato dextrose agar and identified as a *Monosporascus* sp. (2). A pure culture was confirmed as *Monosporascus cannonballus* Pollack & Uecker. IMI (373485(01)) by IMI, Surrey, U.K. Pathogenicity was confirmed in a temperature-controlled growth chamber on the melon cv. Red Queen(F1). A medium that consisted of 3 liters of sand, 275 g of dried ground oat hulls, and 450 ml of distilled sterile water (1) was inoculated and incubated for 40 days. The colonized medium (100 ml) was mixed with a pasturized potting mix (sand/peat moss; 1:1) in 17-cm-diameter plastic pots. Five seeds were planted in each pot and, 15 days after germination, seedlings were thinned to one per pot. Noninfested pots were inoculated with sterile sand/oat hull medium. The pots were placed in chambers maintained at 30/20°C, day/night. At various intervals, the onset and severity of symptom expression were recorded. The isolate caused stunting and root necrosis. The fungus was reisolated from symptomatic plants. This report extends the known range of *M. cannonballus* to include Saudi Arabia. Other reports of this fungus are from India, Israel, Japan, Libya, Mexico, Spain, Taiwan, Tunisia, and the U.S.

References: (1) J. C. Mertely et al. Plant Dis. 77:667, 1993. (2) F. G. Pollack and F. A. Uecker. Mycologia 66:346, 1974.

A Bipartite Geminivirus Infecting Tomatoes in Cuba. Y. Martinez, C. de Blas, I. Zabalgogeazcoa, M. Quiñones, C. Castellanos, E. L. Peralta, and J. Romero. First, second, third, and seventh authors: Biología Molecular y Virología Vegetal, CIT-INIA, Autopista A-6 Km 7.5, 28040 Madrid, Spain, E-mail: <cblas@inia.es>; first, fourth, and sixth authors: Centro Nacional de Sanidad Agropecuaria, Apartado 10, San José de Las Lajas, La Habana, Cuba, E-mail: <censa@ceniai.inf.cu>; fifth author: Area de Mejora Genética Animal, CIT-INIA, Autopista A-6 Km 7.5, 28040 Madrid, Spain. Plant Dis. 81:1215, 1997; published on-line as D-1997-0812-01N, 1997. Accepted for publication 5 August 1997. The title of this Note has been changed from that of the previously published on-line version to avoid confusion with another previously published Note (publication no. D-1997-0730-01N, by Ramos et al.).

Whitefly-transmitted geminiviruses have increased in their distribution and importance during the last decade, apparently due to a wider distribution of their vector *Bemisia tabaci* (Gennadius). In Cuba, symptoms of geminivirus disease have been observed since the early 1990s. A survey of geminivirus-caused diseases in tomato plants has been conducted since 1994 in the province of La Habana. The most severe symptoms were observed in the commercial varieties Campbell 28, Criollo Quivican, and HC 3880. In some plants the Israeli strain of tomato yellow leaf curl geminivirus (TYLCV) was detected (1). In other cases, a viral DNA with a genome size smaller than that of TYLCV that could not be amplified with primers specific for the Israeli strain was also detected by hybridization. In these samples a polymerase chain reaction amplification with broad-spectrum, degenerate primers designed for whitefly-transmitted bipartite geminivirus (2) was carried out. Two fragments of about 1.1 and 0.6 kb, corresponding to components A and B, respectively, were amplified, indicating that a bipartite geminivirus was present. The 1.1-kb fragment amplified from a sample showing strong leaf yellowing and slight curling was cloned and sequenced. A sequence of 1,174 nucleotides was obtained and compared with geminivirus sequences deposited in the GenBank, by multiple alignment (CLUSTAL W, European Bioinformatics Institute, Hinxton Hall, UK). Genetic distances were calculated by Kimura's two parameters method. Percentages of similarities obtained with the sequence were as follows: tomato mottle virus 78%, abutilon mosaic virus 73.8%, and tomato golden mosaic 61.8%. Partial sequences of the open reading frames AL1 and AR1 and the intergenic region were present. Percentages of similarities obtained with the intergenic region were as follows: tomato mottle virus 78.1%, sida golden mosaic virus 63%, bean dwarf mosaic virus 62.6%, abutilon mosaic virus 57.1%, and tomato golden mosaic virus 32%. These results suggest that we have detected in Cuban tomatoes a new bipartite geminivirus related to tomato mottle virus, and we propose that it be named Havana tomato virus. Frequency of distribution of viruses in commercial varieties and their relationship with the presence of whiteflies are currently being studied.

References: (1) Y. Martinez et al. J. Phytopathol. 144:277, 1996. (2) M. R. Rojas et al. Plant Dis. 77:340, 1993.

(*Disease Notes* continued on next page)

First Report of *Fusarium solani* f. sp. *cucurbitae* Race 1 in Spain. J. García-Jiménez, J. Armengol, M. J. Moya, and R. Sales, Jr., Patología Vegetal, Departamento de Producción Vegetal, Universidad Politécnica de Valencia, Camino de Vera 14, 46020 Valencia, Spain. Plant Dis. 81: 1216, 1997; published on-line as D-1997-0813-01N, 1997. Accepted for publication 7 August 1997.

A crown, root, and fruit rot of squash (*Cucurbita maxima* Duchesne) was first observed in 1995 and again in 1996 in several fields in the eastern provinces of Valencia and Castellón. When plants approach maturity they exhibited a severe cortical rot at the base of the stem and the upper portion of the taproot causing yellowing and wilting of the leaves. Within a few days of the first symptoms of crown rot, affected plants usually died. Soft, circular lesions developed where fruit were in contact with soil. Isolations on potato dextrose agar supplemented with 0.5 mg/ml of streptomycin sulfate (PDAS) from the crown of symptomatic plants and fruits yielded primarily a *Fusarium* sp. Isolates were transferred to potato sucrose agar (PSA) and Bilay's medium, modified by Joffe (SNA), and incubated at 25°C for 10 days with a 12-h photoperiod. The isolates were identified as *Fusarium solani* (Mart.) Sacc. based on colony morphology on PSA and fungal morphology on SNA. *C. maxima* (cv. Dulce de Horno) seedlings (eight replicates per isolate) grown on a sterilized mixture of equal portions (vol/vol) of soil, sand, and peat moss were inoculated at the first true leaf stage by introducing a 10-ml spore suspension (10^6 spores per ml) at the base of plants. Symptoms appeared in 14 to 21 days as linear, coalescing, cortical lesions in the hypocotyl of inoculated plants and ultimately caused seedling death. There were no differences observed in the five isolates tested, regardless of origin. Mature fruits were inoculated by injecting spore suspension (10^6 spores per ml) into the mesocarp. Within 14 to 21 days after inoculation, lesions developed similar to those observed in the field. Stem isolates were pathogenic on the fruit, and fruit isolates were pathogenic on stems. Reference isolates NRLL 22165 and NRRL 22449 for race 1, and NRRL 20545 and NRRL 22144 for race 2, provided by K. O'Donnell, were also tested as positive controls. Only race 1 isolates caused seedling death. In each study, the fungus was reisolated, confirming Koch's postulates. Based on these results and disease symptoms in the field, the fungus was classified as *F. solani* f. sp. *cucurbitae* W. C. Snyder & H. N. Hans race 1, which causes a root, stem, and fruit rot, whereas race 2 causes only a fruit rot (1). *F. solani* also was isolated from seeds removed from diseased fruits. This is the first report of the presence of *F. solani* f. sp. *cucurbitae* race 1 in Spain.

Reference: (1) T. A. Tousson and W. C. Snyder. Phytopathology 51:17, 1961.

First Report of *Phytophthora megasperma* and *Pythium irregulare* As Olive Tree Root Pathogens. M. E. Sánchez-Hernández, A. Ruiz-Dávila, and A. Trapero-Casas, Departamento de Agronomía, ETSIAM, Universidad de Córdoba, Apdo. 3048, 14080-Córdoba, Spain. Plant Dis. 81:1216, 1997; published on-line as D-1997-0825-01N, 1997. Accepted for publication 19 August 1997.

Several species of the genus *Phytophthora* are associated with root rot and trunk cankers in olive trees (*Olea europaea* L.). Among them, *Phytophthora megasperma* has been cited as being associated with olive root rots in Greece (1). Unidentified species of *Pythium* and *Phytophthora* have also been associated with olive tree root rots in the United States. However, the status of *P. megasperma* and *Pythium* spp. as olive tree root pathogens has remained unclear. Following a 5-year period of severe drought in southern Spain, autumn-winter rainfall rates in 1996 to 1997 steadily increased in both quantity and frequency. Under these unusually wet conditions, olive trees remained waterlogged for several months. During this period, we observed foliar wilting, dieback, and death of young trees, and later found extensive root necrosis. In 46 of 49 affected plantations surveyed, *P. megasperma* was consistently isolated from the rotted rootlets, particularly in young (<1- to 10-year-old trees) plantations. This fungus was not detected on plant material affected by damping-off from several Spanish olive tree nurseries. The opposite situation occurred with *P. irregulare*. This species was not associated with rotted rootlets in the field. In contrast, it was consistently isolated from necrotic rootlets from young olive plants affected by damping-off. These plants were grown in a sand-lime-peat soil mixture under greenhouse conditions and showed foliar wilting and extensive necrosis of the root systems. Pathogenicity tests were conducted with several isolates of *P. megasperma* and *P. irregulare* on 6-month-old rooted cuttings of olive, under both weekly watering and waterlogged conditions. Under waterlogged conditions, both fungal species produced extensive root necrosis 2 weeks after inoculation that resulted in wilting of the aerial parts and rapid plant death. Waterlogged control plants remained without foliar symptoms but a low degree of root necrosis was recorded. In addition, under weekly watering conditions, plants inoculated with either species showed some degree of root rot but foliar symptoms were not evident. No differences in pathogenicity were observed within the *Phytophthora* or *Pythium* isolates.

Reference: (1) H. Kouyeas and A. Chitzanidis. Ann. Inst. Phytopathol. Benaki 8:175, 1968.