Disease Notes (*continued*)

First Report of Powdery Mildew Caused by *Leveillula taurica* on Tomato and Pepper in Bolivia. J. C. Correll, M. I. Villarroel, and P. J. McLeod, Department of Plant Pathology and Entomology, University of Arkansas, Fayetteville; and M. I. Cazon, and C. Rivadeneria, Universidad Autónoma "Gabriel Rene Moreno" Santa Cruz, Bolivia. Plant Dis. 89:776, 2005; published on-line as DOI: 10.1094/PD-89-0776A. Accepted for publication 2 April 2005.

Chlorotic and necrotic lesions typical of powdery mildew caused by *L. taurica* were observed in several tomato (*Lycopersicon esculentum*) and pepper (*Capsicum annuum*) fields in Santa Cruz State, Bolivia near the town of Mairana during September 2004. The tomato cultivars affected were Santa Clara, Superman, and Cool 45. Symptoms included bright yellow chlorotic lesions or brown necrotic lesions on different age leaves. Examination of samples collected from several fields revealed sporulation of *L. taurica* on abaxial leaf surfaces. The fungus had branched conidiophores, a tapered or pyriform apical conidium, with other conidia being more cylindrical (1,2). Conidial size was approximately 60 × 18 µm. Only the *Oidiopsis* stage was observed. Disease severity was high and caused a significant amount of leaf necrosis and partial defoliation on tomato. Only sporadic lesions were observed on pepper cv. YoloWonder and no significant foliar damage was observed. The growing region receives approximately 75 mm of rainfall annually with most of the rainfall occurring between October and April. Thus, powdery mildew was observed near the end of the normal 5-month dry season. It is likely that the disease has been in the region for some time based on observations from field personnel. Although reported from several other South American countries, to our knowledge, this is the first report of this disease in Bolivia.

References: (1) H. J. Boesewinkel. Bot. Rev. 46:167, 1980; (2) J. C. Correll et al. Plant Dis. 71:248, 1987.

First Report of *Cucurbit aphid-borne yellows virus* in Tunisia Causing Yellows on Five Cucurbitacious Species. M. Mnari Hattab, Laboratoire de Protection des Végétaux, Institut National de la Recherche Agronomique de Tunis, 2049 Ariana, Tunisia; J. Kummert and S. Roussel, Unité de Phytopathologie, Faculté Universitaire des Sciences Agronomiques, B5030 Gembloux, Belgium; K. Ezzaier, Laboratoire de Protection des Végétaux, Institut National de la Recherche Agronomique de Tunis, 2049 Ariana, Tunisia; A. Zouba, Pôle Régional de Recherche Développement Agricole 2260 Déguache, Tunisia; and M. H. Jijakli, Unité de Phytopathologie, Faculté Universitaire des Sciences Agronomiques, B5030 Gembloux, Belgium. Plant Dis. 89:776, 2005; published on-line as DOI: 10.1094/PD-89-0776B. Accepted for publication 26 April 2005.

Viruses, distributed worldwide on cucurbits, cause severe damage to crops. Virus surveys in 2003 and 2004 were made in all the major cucurbit-growing areas in Tunisia. Large populations of aphids (*Aphis gossypii* Glover) and severe yellowing symptoms of older leaves of cucurbits were observed in outdoor and under plastic-tunnel cultivation, suggesting the presence of *Cucurbit aphid-borne yellows virus* (CABYV, genus *Polerovirus*, family *Luteoviridae*). Leaf samples collected from symptomatic and asymptomatic plants of melon (*Cucumis melo* L.), cucumber (*C. sativus* L.), squash (*Cucurbita pepo* L.), watermelon (*Citrullus lanatus* L.), and ware cucurbit (*Ecballium elaterium* L. T. Richard) were screened for the presence of CABYV using enzyme-linked immunosorbent assay (ELISA) and reverse transcription-polymerase chain reaction (RT-PCR). Reference isolate, CABYV-N (GenBank Accession No. X76931) was provided by H. Lecoq (INRA-Monfavet Cedex, France). Sample extracts from fresh leaf tissues were tested using ELISA with an antiserum prepared against this isolate. In addition, total RNA was extracted from fresh leaf tissues according to the technique of Celix et al. (2) using the Titan RT-PCR kit from Roche Diagnostics (Penzberg, Germany). Forward primer (5′-GAGGCGAAGGCGAAGAAATC-3′) and reverse primer (5′-TCTGGACCTGGCACTTGATG-3′) were designed with the available sequence of the reference isolate. ELISA tests demonstrated that 91 plants were positive among 160 plants tested with severe yellowing symptoms. All asymptomatic plants were negative. RT-PCR results yielded an expected 550-bp product that was amplified from the reference isolate. Of the 160 plants tested using ELISA, 106 plants were screened with RT-PCR including the 91 plants that were positive in ELISA. These 91 plants also were positive after RT-PCR amplification as were 12 more plants. This demonstrated that the RT-PCR test is more sensitive. No amplicons were produced from extracts of asymptomatic plants, RNA preparations of *Cucurbit yellow stunting disorder virus* (CYSDV), or *Beet pseudo yellows virus* (BPYV) positive controls provided by B. Falk (University of California, Davis). CYSDV and BPYV can induce similar yellowing symptoms in cucurbits. The results of the ELISA and RT-PCR tests showed that CABYV is widely distributed on five cucurbit species in the major growing areas of Tunisia including the northern, Sahel, central, and southern regions where it was detected, respectively, in 10 of 25, 11 of 21, 24 of 37, and 58 of 77 samples tested. CABYV was detected at the rates of 63 of 72 on melon, 10 of 21 on cucumber, 17 of 24 on squash, 10 of 25 on watermelon, and 3 of 18 on ware cucurbit. CABYV also seems to be widespread throughout the Mediterranean Basin (1,3,4), but to our knowledge, this is the first report of the occurrence of CABYV in Tunisia on different species of cucurbit and ware cucurbit.

References: (1) Y. Abou-Jawdah et al. Crop Prot. 19:217, 2000. (2) A. Celix et al. Phytopathology 86:1370, 1996. (3) M. Juarez et al. Plant Dis. 88:907, 2004. (4) H. Lecoq et al. Plant Pathol. 41:749, 1992.

First Report of Pathogenicity Groups 3 and 4 of *Leptosphaeria maculans* on Canola in North Dakota. C. A. Bradley, Department of Plant Pathology, North Dakota State University, Fargo 58105; and P. S. Parks, Y. Chen, and W. G. D. Fernando, Department of Plant Science, University of Manitoba, Winnipeg, MB R3T 2N2, Canada. Plant Dis. 89:776, 2005; published on-line as DOI: 10.1094/PD-89-0776C. Accepted for publication 18 April 2005.

Blackleg, caused by *Leptosphaeria maculans* (Desmaz) Ces. & de Not (anamorph = *Phoma lingam*), is an economically important disease of canola (*Brassica napus* L.) worldwide and was first detected in North Dakota in 1991 (3). *L. maculans* can be categorized into one of several pathogenicity groups (PGs) on the basis of the interaction phenotypes in differential canola cvs. Westar, Glacier, and Quinta by using a standard screening protocol in the greenhouse (4). With this system, PG1 strains are weakly virulent and PG2, PG3, and PG4 are highly virulent. The predominant strains of *L. maculans* in North Dakota are PG1 and PG2 (3). In cooperation with the Oilseed Pathology Lab in the Department of Plant Science, University of Manitoba, blackleg-infested canola stubble was collected arbitrarily from fields in North Dakota during August and September of 2003. Isolates of the pathogen were obtained by plating surface-sterilized (2% NaOCl), collected stubble on V8 agar containing 0.03% chloramphenicol at 22°C under continuous cool-white fluorescent light. Pycnidiospores were harvested from single pycnidia after 14 days of incubation with the Miracloth filtering method (2) and stored at –20°C. Each isolate was passed once through cv. Westar to maintain virulence. Isolates were confirmed as being *L. maculans* by the presence of characteristic pink pycnidia formed on V8 agar and the characteristic symptoms caused on inoculated cotyledons of cv. Westar. The PG test was performed using a standard screening protocol (4) and was repeated three times for each isolate. For each isolate, 12 7-day-old cotyledons of each differential cultivar were wound inoculated with 10 µl of a pycnidiospore suspension (1×10^7 per ml). Disease severity on cotyledons was assessed 12 days after inoculation with a 0 to 9 scale (0 to 2 = resistant; 3 to 6 = intermediate; and 7 to 9 = susceptible). A total of 106 isolates were obtained from the stubble collected from 47 fields. Of these isolates, three were characterized as PG1, 94 as PG2, six as PG3, and one as PG4; two isolates could not be characterized according to the PG system as described (4). PG3 isolates originated from two fields in Cavalier County and one field in Ward County. The PG4 isolate was from Cavalier County. To our knowledge, this is the first time highly virulent strains of PG3 and PG4 have been detected in North Dakota. PG3 and PG4 strains of *L. maculans* were found only recently in western Canada (1,2). The discovery of these PGs in North Dakota and western Canada has immense implication to canola breeding programs and blackleg control, since these PGs may cause greater levels of blackleg severity on canola cultivars that are resistant to only PG2 type isolates.

References: (1) Y. Chen and W. G. D. Fernando. Plant Dis. 89:339, 2005. (2) W. G. D. Fernando and Y. Chen. Plant Dis. 87:1268, 2003. (3) H. A. Lamey and D. E. Hershman. Plant Dis. 77:1263, 1993. (4) A. Mengistu et al. Plant Dis. 75:1279, 1991.