

## Disease Notes

### ***Cephalosporium maydis*, the Cause of Late Wilt in Maize, a Pathogen New to Portugal and Spain**

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Scattered maize (*Zea mays* L.) plants with symptoms of premature wilting were observed in two fields in Toledo (Spain) during the summer of 2003. In 2008, affected fields in Toledo and Ribatejo (Portugal) showed incidences as much as 60% and symptoms affecting 50% of the hybrid varieties. Wilting became visible before tasseling and continued until shortly before maturity. It steadily progressed from the lower to upper leaves; the leaf tissues between the veins changing first to a pale green color then the whole leaf rolling inward lengthwise. Some leaves dried up and became brittle. As leaf wilting advanced, yellowish or reddish brown streaks appeared on the basal internodes of the stalk, which dried up and became shrunken. When the stalk was split, a brown discoloration extended along the internodes. The fungus that was consistently isolated from necrotic roots and basal tissues of the stalks of plants from both locations was identified as *Cephalosporium maydis* Samra, Sabet & Hingorani (1). The internal transcribed spacer (ITS) region of mycelial DNA was amplified (ITS1 and ITS2 primers) and sequenced. BLAST analysis showed 99% homology with *C. maydis* (GenBank Accession Nos. CM2A1, CM884, CM3B, and CM1A). Pathogenicity was confirmed in a shadehouse experiment from March to July of 2009. One isolate from Ribatejo and another from Toledo were independently inoculated to 24 4-day-old seedlings of each of two maize varieties. The experimental unit consisted of six seedlings planted in an 8-liter pot filled with sand/silt previously infested with 200 g of wheat grains colonized by the fungi. Noncolonized wheat grains were used for the control treatments. Four replications (pots) were established for each genotype/isolate combination according to a complete randomized 2 × 3 factorial design. After 6 weeks, four plants in each pot were randomly selected for evaluation of root necrosis, plant height, and reisolations of *C. maydis*. The two remaining plants were grown for nine additional weeks, then their weights were determined, and the percentages of aboveground tissues that were prematurely necrotic and dry were evaluated. Six weeks after inoculation, percentage of root necrosis of inoculated plants ranged between 75 and 100%, which was significantly higher than those of the controls (0%). No significant differences of height were recorded. At the end of the experiment, 28 to 53% of aboveground tissues of inoculated plants were necrotic and dry, significantly higher than in the controls. Regardless of the variety, weights of the inoculated plants were significantly reduced to 45 and 65% of the control plants. When root and stalk tissues from both varieties were sampled and incubated on potato dextrose agar at 25°C, the mycelial growth of *C. maydis* was confirmed for the inoculated plants but not for the control plants: colonies with "rhizoid" appearance of the margin, first white in color and turning to ash gray with age. To our knowledge, this is the first report of the presence of *C. maydis* outside Egypt, Hungary, and India. This geographical expansion of the pathogen will eventually affect the maize breeding programs for southern Europe.

*Reference:* (1) A. S. Samra et al. *Phytopathology* 53:402, 1963.