Diseases Caused by Fungi and Fungus-Like Organisms

First Report of *Curvularia lunata* Causing Curvularia Leaf Spot of Corn in Delaware

M. Henrickson[†] and A. M. Koehler

Department of Plant and Soil Sciences, University of Delaware, Georgetown, DE 19947

Plant Dis. 106:319, 2022; published online as <https://doi.org/10.1094/PDIS-04-21-0742-PDN>. Accepted for publication 21 June 2021.

In mid-August 2020, small circular tan-colored lesions were detected in leaves of corn, *Zea mays*, in Sussex County, Delaware. Symptoms were observed in many fields, affecting multiple hybrids that were at approximately the dough growth stage (R4). Lesions were present on most plants, and individual ear leaf severity ratings ranged from 3 to 14%. Symptomatic corn leaves were selected from the field and kept in a moist chamber for 24 h at 25°C. In lesions, melanized spores were observed ranging from 21.94 to 30.51 µm in length and 7.83 to 11.70 µm in width ($n = 20$). Leaf sections (1 cm²) were extracted and sterilized in a 0.85% sodium hypochlorite solution for 30 s, followed by a sterile water rinse for 30 s. Leaf pieces were then plated onto potato dextrose agar (PDA) amended with 50 µg/ml of penicillin-G-sodium salt and streptomycin sulfate. Petri dishes were incubated at 25°C with a 12-h photoperiod for 14 days. Colonies were brown-black to lighter gray in color. Medium was stained from orange to dark brown, or not at all. Conidia were melanized and curved with three transverse septa matching the size above. Colony and spore morphology were consistent with the description of *Curvularia lunata* (Garcia-Aroca et al. 2018). Pure cultures were obtained, and a representative isolate was sequenced to confirm fungal identity by amplifying the internal transcribed spacer region with primers ITS4 and ITS5. BLAST search results confirmed 100% similarity (483/531 bp) to the *C. lunata* reference sequence (MK623264). The sequence was deposited in GenBank as accession

number MW794323. To complete Koch's postulates, corn (hybrid: Hubner H6187RCSS) was planted into 10-cm pots and maintained at 25°C and a 12-h photoperiod. A conidial suspension was made by soaking a Petri dish of a 3-week-old fungal colony with 20 ml of sterile water and a drop of Tween-20 solution and then scraping mycelia to dislodge spores. The conidial concentration was calibrated to 5×10^5 spores/ml, and 15 ml was applied to each whorl of four three-collar-stage plants using a Preval sprayer (Nakoma Products, Bridgeview, IL). Four plants were inoculated with 15 ml of sterile deionized water as a control. This experiment was repeated twice. Each plant was moved to an incubator and covered with a plastic bag for 24 h to maintain humidity. Conditions in the incubator were maintained at 25°C with a 12-h photoperiod. Inoculated plants displayed small, oval-shaped lesions within 4 days. No symptoms were observed on the control plants. Symptomatic leaves were harvested and placed into a moist chamber for 24 h to sporulate, and lesions were plated onto PDA as described above. Culture morphology was consistent with the original isolate, with spores slightly larger, ranging from 22.35 to 39.29 µm in length and 8.36 to 11.69 µm in width ($n = 20$). Isolates obtained from inoculated plants were sequenced and maintained 100% identity with the reference sequence described above. *C. lunata* was first reported in Louisiana in 2017 (Garcia-Aroca et al. 2018) and in Kentucky in 2018 (Anderson et al. 2019). This is the first report of *Curvularia* leaf spot on corn in Delaware. Symptoms developed late in the season, so it is unlikely that yield was affected in 2020. However, the economic impact of this disease in the United States is still unclear, and it will be important to monitor potential impacts of this disease in Delaware corn production.

References:

- Anderson, N. R., et al. 2019. Plant Dis. 103:2692.
Garcia-Aroca, T., et al. 2018. Plant Health Prog. 19:140.

The author(s) declare no conflict of interest.

e-Xtra

Keywords: *Curvularia*, field crops, cereals and grains

[†]Indicates the corresponding author.
M. Henrickson; madelhen@udel.edu