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Disease Notes

First Report of Target Spot of Broadleaf Tobacco Caused by *Rhizoctonia solani* (AG-3) in Connecticut

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In June 2011, 15 transplant beds of broadleaf cigar wrapper tobacco (*Nicotiana tabacum* L., cv. C9) plants in Hartford County, Connecticut, were observed with almost every plant diseased. Leaf lesion symptoms ranged from small (2 to 3 mm) water-soaked spots to larger (2 to 3 cm) lesions. Disease was subsequently observed, also at nearly 100% incidence in a 10-hectare field on that farm and at additional broadleaf tobacco farms from two other towns in Hartford County and one town in Tolland County. Lesions exhibited a pattern of concentric rings, necrotic centers and tears in the centers, and margins that often resulted in a shot-hole appearance. Some lesions had chlorotic halos. *Rhizoctonia solani* Kuhn (*Thanatephorus cucumeris* A. B. Frank) was isolated from the margins of lesions that had been surface sterilized in 0.5% NaOCl for 30 s and then rinsed in sterile distilled water and placed on the surface of half-strength potato dextrose agar (PDA). Multiple isolations were made and the pathogen was identified on the basis of mycelial characteristics including multinucleate cells, septate hyphae wider than 7 µm, and hyphal branches occurring at approximately right angles, constricted at the base (4). Eight-week-old potted tobacco plants were each inoculated by spraying with a mycelial suspension (1×10^5 CFU) of an isolate of *R. solani* recovered from tobacco onto leaves, or with water alone (five plants each). The plants were placed in plastic bags in a 24°C growth chamber and misted. After 2 days, the bags were removed and the potted plants placed in trays filled to a depth of 1 cm with water in the growth chamber. After 8 days, the pathogen was reisolated from all inoculated plants exhibiting water-soaked spots as disease symptoms. Leaves inoculated with water or half-strength PDA plugs alone were asymptomatic. DNA was liberated from hyphae of the *R. solani* isolate by bead beating in STE buffer using 0.15 mm zirconium beads. Two microliters of the eluate was used to amplify the ITS region. Amplified DNA was purified in a Qiagen QIAquick PCR purification kit and submitted to the Yale science hill genomic facility for standard Sanger dideoxy sequencing. The sequence was exactly the same as an isolate from Massachusetts that we sequenced in 2010 (GenBank Accession No. HQ241274). The ITS sequence confirmed our identification of this new isolate as *R. solani* anastomosis group (AG) 3. This disease has been previously reported on tobacco from South America, South Africa, and the southern United States (1), Canada (3), and Massachusetts (2). Conditions were very conducive for disease because 2011 was a very wet year in Connecticut. To our knowledge, this is the first report of this disease in broadleaf cigar wrapper tobacco in Connecticut. The sequence data suggested that it may have been introduced to Connecticut from Massachusetts. We have found the target spot pathogen distributed across the tobacco producing area of Connecticut. This constitutes a serious threat as there are no systemic fungicides currently registered for control of this disease in broadleaf tobacco.

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