Diseases Caused by Fungi and Fungus-Like Organisms

First Report of Summer Patch of Creeping Bentgrass Caused by *Magnaporthiopsis poae* in Southeastern China

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Creeping bentgrass (*Agrostis stolonifera* L.) is an important cool-season perennial turfgrass that has been widely used on golf courses across China. In July 2017, an unknown disease outbreak caused damages on 7 of the 18 putting greens of creeping bentgrass at Jiuqiao Golf Club in Hangzhou city of Zhejiang province. Daytime high temperatures were consistently above 35°C during the disease development. Symptoms appeared in tan irregular patches of 5- to 20-cm diameter, exhibiting chlorosis and foliar dieback in most part. Necrotic roots were frequently observed in diseased areas and colonized with ectotrophic hyphae under a microscope. Similar symptoms and signs were reported on creeping bentgrass caused by *Magnaporthiopsis poae* (Landschoot & Jackson) J. Luo & N. Zhang on golf courses in Beijing (Hu et al. 2017). Fifteen disease samples were collected from seven putting greens. Dark root tips were cut, surface sterilized in 0.6% sodium hypochlorite (NaClO) for 5 min, washed twice with sterilized water, air dried for 1 min and placed on potato dextrose agar (PDA) containing 50 mg/liter each of ampicillin, streptomycin sulfate, and tetracycline. Plates were incubated in the dark at room temperature for 4 days, and 10 fungal isolates with similar morphology as described by Clarke and Gould (1993) were consistently recovered from the diseased root tips. DNA of two representative isolates

was extracted and amplified with primers ITS 5/ITS 4 (White et al. 1990). PCR products were sequenced (deposited in GenBank as MZ895215 and MZ895216), and BLAST analysis showed 99.17% similarity to *M. poae* (accession no. DQ528765). Six plastic pots (15 cm height × 15 cm top diameter × 10 cm bottom diameter, three replicates for each isolate) were seeded with creeping bentgrass and placed in the greenhouse for two months of plant growth before inoculation. The pathogenic inoculum was prepared by inoculating autoclaved oat seeds with *M. poae* isolates, followed by 2 weeks of incubation at 25°C. About 25 mg of *M. poae*-infested oat seeds were placed 10 cm below the soil surface in the root zone of creeping bentgrass. Noninfested oat seeds were inoculated on healthy creeping bentgrass as controls. Pots were placed in a growth chamber with a 12-h day/night cycle at 35/28°C and watered daily to keep high soil moisture. Disease symptoms (foliar dieback and necrotic roots) were noted 3 weeks after inoculation. *M. poae* was consistently recovered from the roots of inoculated turf and identified molecularly as described above, fulfilling Koch's postulates. To our knowledge, this is the first report of summer patch on creeping bentgrass caused by *M. poae* in southeastern China. This research demonstrates a wider distribution of *M. poae* and will be an important step toward the development of management strategies for summer patch control in China.

References:

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