Diseases Caused by Fungi and Fungus-Like Organisms

First Record of Leaf Spot Disease on *Costus speciosus* Caused by *Nigrospora oryzae* in Hainan, China

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Funding: The project was partially funded by Hainan Provincial Research Institute of technology development projects (Screening and application of endophytic bacteria with high resistance to Fusarium wilt of *Sauropus androgynus*), Hainan Provincial Key Laboratory for Vegetables and Biology, Hainan Provincial Engineering Research Center for Melon and Vegetable Breeding, Major scientific and technological projects in Hainan Province (ZDKJ2017001), Third Survey and Collection of Crop Germplasm Resources in China, and Collection, identification and preservation of pathogenic bacteria of inverted season vegetable in Hainan. Plant Dis. 105:506, 2021; published online as <https://doi.org/10.1094/PDIS-12-18-2181-PDN>. Accepted for publication 23 August 2020.

Costus speciosus (Koen.) Smith has been an important medicinal agent in the various traditional and folk systems of medicine in southern China. In September 2018, leaf spot disease was detected on *C. speciosus* plants in Chengmai County, Hainan Province. A survey of *C. speciosus* plants revealed that the disease caused serious damage during the typhoon season of September to November in Hainan Province, with 80 to 85% incidence in plants. Early symptoms were yellow-to-brown, irregular-shaped lesions on the leaf margin or tip. After several days, lesions expanded along the midvein until the entire leaf was destroyed. Then, the infected leaves turned gray brown, leading to defoliation. Heavily infected leaves became dry and

died. The pathogen was consistently isolated from the lesions, and pure single-spore cultures were obtained. Twenty pieces of diseased leaf samples were plated, and seven pieces yielded fungal colonies after 5 to 6 days of incubation at 25°C. Colonies on potato dextrose agar (PDA) were white and later became gray to black. Conidia were unicellular, terminal, black, elliptical, measuring 10 to 13 (length) × 12 to 16 (width) µm ($n = 30$), growing aerial mycelium covering the entire Petri dish (9 cm in diameter). The morphological characteristics and measurements of this fungal pathogen matched the previous descriptions of *Nigrospora oryzae* (Wang et al. 2017). To confirm identity, the internal transcribed spacer (ITS) region of the ribosomal DNA was amplified using primers ITS1/ITS4 (Mills et al. 1992), and the 530-bp product (GenBank accession no. MK280694) of the ITS showed 99% sequence identity to *N. oryzae* isolates TLFa21 (GenBank accession no. MH790146) and xsd08022 (GenBank accession no. EU918714). Pathogenicity tests were conducted. Three leaves of three *C. speciosus* plants were wounded and inoculated with mycelial plugs (5 × 5 mm), and an additional five plants were inoculated with PDA plugs as a control. All plants were placed in the field, and temperature ranged from 23 to 29°C. Ten days after inoculation, all the inoculated plants showed typical leaf spot symptoms, a yellow-to-brown mildew at the points of inoculation. No symptoms were observed on the controls. The fungus was reisolated from the infected tissues, fulfilling Koch's postulates. *N. oryzae* was previously reported as the causal agent of leaf spot on cotton (Zhang et al. 2012), *Dendrobium candidum* (Wu et al. 2014), and *Aloe vera* (Zhai et al. 2013) in China. To our knowledge, this is the first report of leaf spot of *C. speciosus* caused by *N. oryzae* in China.

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The author(s) declare no conflict of interest.

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Keywords: fungi, tropical plants, pathogen detection

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