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First Report of Anthracnose Occurrence on Sloumi by *Colletotrichum gloeosporioides* in Korea

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Sloumi (*Daphniphyllum macropodum* Miquel) is a garden tree having evergreen broadleaves and is originated from East Asia, including Japan, Taiwan, and southeastern region of China, under warm and humid weather condition (Hogan, 2008). In October 2008, sloumi showing typical anthracnose disease symptoms on leaves was found in the greenhouse, South Korea. *Colletotrichum gloeosporioides* causing anthracnose leaf spot was isolated in Japan and deposited in National Institute of Agrobiological Science (NIAB) (MAFF no. 237926) in 1999.

Dark brown symptom occurred on the leaf margin of sloumi trees. At the center of the lesion, black target-like ring appeared, and circular black granules were observed under the stereomicroscope (Fig. 1A). On potato dextrose agar (PDA), isolate CgJJ-1 produced salmon colored conidial mass 5 days after incubation (Fig. 1B left), and aerial mycelia turned into grayish olive color 9 days after incubation (Fig. 1B right). Conidia of the fungus were straight, cylindrical, apex obtuse, and base sub-truncate, measured 13.4-16.3×4.8-6.7 μm in size (Fig. 1C-F). Appressoria were brown to dark brown, ovate, clavate and measured and 6.7-8.4×4.6-7.9 μm in size (Fig. 1E and F). Size and shape of conidia and appressoria of CgJJ-1 were similar to morphological characteristics of *C. gloeosporioides*, previously described by Sutton (1992).

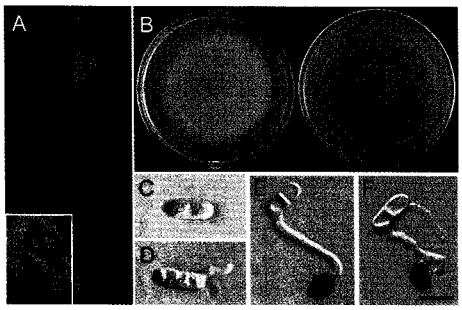

Fig. 1. Anthracnose occurrence in sloumi in greenhouse. A: Symptom of anthracnose on sloumi leaf. B: Cultural features of the isolate CgJJ-1 grown for 5-day-(left) and 9-day-old (right) on PDA. C: Ungerminated spore. D: Spore generating germ tube. E&F: Appressorium melanization. Scale bar represents 10 μm.

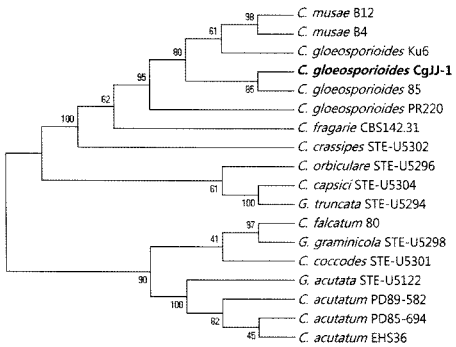

Fig. 2. Neighbor-joining consensus tree depicting phylogenetic relationships among *Colletotrichum* and *Glomerealla* isolates from different host plants based on β-tubulin gene sequences. The value above the branches indicates bootstrapping values.

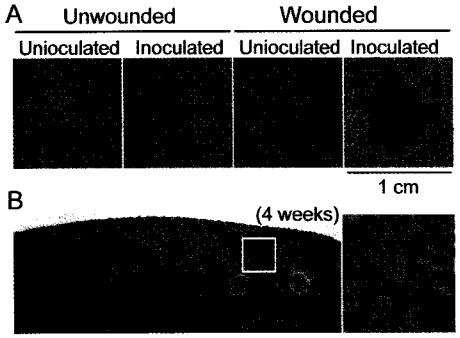

Fig. 3. Symptom induced by inoculation of CgJJ-1 on sloumi leaves. A: Sloumi leaves were inoculated by mycelial agar plugs with or without wounding 2 weeks after inoculation. B: Anthracnose symptom progress on sloumi leaves inoculated by mycelial agar plugs with wounding 4 weeks after inoculation.

PCR amplification and sequencing of the ITS-rDNA region and partial β-tubulin gene were performed and sequence data were deposited in GenBank (accession no. GQ844841 and GQ844842, respectively). ITS-rDNA regions were amplified using taxon-specific forward primer for *C. gloeosporioides* (named CgInt) coupled with reverse primer (named ITS4) (Freeman et al., 2002). Partial β-tubulin gene of the isolate CgJJ-1 amplified using primers TB5 and TB6 (Talhinhas et al., 2002) demonstrated that the sequence was highly homologous to tubulin sequences of *C. gloeosporioides* isolates in GenBank, but moderately homologous to the sequences from other *Colletotrichum* spp. (Fig. 2). Molecular analysis indicated that CgJJ-1 is classified as *C. gloeosporioides*.

Mycelial agar plug were placed on sloumi leaves with or without pin-wounding, and inoculated leaves were put in the dark humidity chamber (26°C, 95%) for symptom development. Dark brown water-soaked areas emerge only on the abaxial side 2 weeks after inoculation with wounding (Fig. 3A). At 3 weeks later, lesions enlarged and exhibited salmon colored exudates, which became dried black granular masses 4 weeks after inoculation (Fig. 3B). Wounding itself induced small brown speck 2 weeks after inoculation, however, lesions were not enlarged even 4 weeks after wounding.

Acknowledgements

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