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Disease Notes

First Report of Fruit Rot Disease of Mango Caused by *Botryosphaeria dothidea* and *Neofusicoccum mangiferae* in Taiwan

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Mango (*Mangifera indica* L.) is an economically important fruit crop in the tropical and subtropical areas of the world. In southern Taiwan, mango is grown on 18,000 ha of hilly land mainly located in Tainan, Kaohsiung, and Pingtung. Tons (180,000) of mango with a value of NT\$6.6 billion (US\$206 million) are produced annually. In 2008, mango fruit rot disease was observed 1 week after harvest on 30 to 72% of stored mangoes collected from seven orchards in southern Taiwan. The initial symptom was a small, brown lesion and rot symptoms advanced progressively. Two predominant fungi were isolated from the margin of lesions on acidified potato dextrose agar (PDA with lactic acid, pH 3.8). Isolates of each fungal type were transferred to 2% water agar containing sterilized pine needles and exposed to near UV light to induce sporulation. For the first fungus, conidia obtained from pycnidia were ovate, one-celled, and hyaline, with an average length and width of $12.93 \pm 0.93 \times 6.98 \pm 0.40 \mu\text{m}$ and an average length/width ratio of 1.85. To confirm the identity of the fungus, PCR amplification by universal primers, ITS1/ITS4, and DNA sequencing of the internal transcribed spacer (ITS1-5.8S-ITS2 rRNA gene cluster) were conducted. The internal transcribed spacer (ITS) sequence of ribosomal DNA of this fungus was analyzed and submitted to GenBank (Accession No. GQ421486). It showed a sequence identity of 100% with *Neofusicoccum mangiferae* (Syd. & P. Syd.) Crous, Slippers & A. J. L. Phillips) (GenBank Accession No. AY615185). For the second fungus, conidia obtained from

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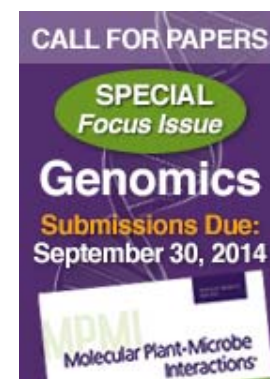
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pycnidia were fusiform, one-celled, and hyaline, with an average length and width of $22.87 \pm 1.32 \times 6.42 \pm 0.46 \mu\text{m}$ and a length/width ratio of 3.53. The ITS sequence of ribosomal DNA of this fungus was analyzed and submitted to GenBank (Accession No. GQ421485). It showed a sequence identity of 100% with *Botryosphaeria dothidea* (Moug.: Fr.) Ces & De Not.) (GenBank Accession No. AY 786321). To test pathogenicity, four mango fruits were wounded with a sterile needle, inoculated with mycelium agar plugs (0.5 mm in diameter) excised from separate monoconidial cultures, and incubated in a plastic box with a 100% relative humidity for 2 days at room temperature. Brown lesions appeared on all wounded sites of each fungus 2 days postinoculation. In control experiments, sterile agar plugs were placed on the wounded mango fruits. These fruits remained completely free from symptoms throughout the experiment. The pathogen was reisolated from the lesions of inoculated fruits and identified as *N. mangiferae* and *B. dothidea*, thus fulfilling Koch's postulates. *N. mangiferae* and *B. dothidea* have been reported on mango trees in Australia and South Africa (1). To our knowledge, this is the first report of these fungi causing fruit rot of mango in Taiwan.

References: (1) B. Slippers et al. Mycologia 97:99, 2005.

