



First report of *Botryosphaeria dothidea* causing dieback disease on apricot trees in Korea

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In July 2020, dieback disease was observed to affect 8 to 10% of apricot (*Prunus armeniaca* L.) cv. Harcot trees in eight orchards in Wanju Province, Korea. An early symptom of the disease is a small sunken lesion on infected branches, and the disease progresses to the root. The infected tree wilts and eventually dies. To identify the causal agent, symptomatic tissues from stems and branches were collected and surface-sterilized with 70% ethanol followed by 1% NaOCl before rinsing thrice with sterile water. Following the method described by Hyun (2019), a total of 16 fungal colonies were obtained and identified. On the potato dextrose agar (PDA), fungal colonies initially white but later turned black due to the pycnidia formation. Conidia were ovoid, hyaline, fusoid, and unicellular, with an average size of $(12.80\text{--}18.10) \times (3.10\text{--}5.2) \mu\text{m}$ ($n = 50$). Molecular identifications were conducted as described by Slippers (2004). BLAST analysis on two isolates using ITS (OQ729810, OQ729811), *TUB* (OQ737100, OQ737101) and *EF1* (OQ944348, OQ737099) gene sequences revealed 99–100% similarity to *Botryosphaeria dothidea* reference genes (LC602817, LC602820, LC602821) respectively

(Back, 2022). Phylogenetic analysis confirmed that fungal isolates clustered within the *B. dothidea* species. Pathogenicity tests were performed using mycelia (PDA plug) on three years old apricot cultivar ‘Harcot’. Fungal isolates were inoculated on the wounded site of 10 twigs for each of three different trees growing at the National Institute of Horticulture and Herbal Science trial farm. Apricot twigs were mock inoculated with sterile PDA plugs as a control. Seven days post-inoculation, the inoculated sites had turned dark brown, indicating fungal isolates are pathogenic to apricot. No symptoms were observed on the control twigs. The re-identification results reveal that the fungi’s morphology is indistinguishable to the original isolate, while their molecular marker sequences are 100% identical, thus fulfilling Koch’s postulates. An accurate identification of the causal agent is needed to implement appropriate disease management strategies to minimize its impact on the apricot industry. To our knowledge, this is the first report of dieback disease caused by *B. dothidea* on apricot in Korea.

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Declarations

Ethical approval The National Institute of Horticultural and Herbal Science Research Ethics Committee has confirmed that no ethical approval is required for this research work.

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