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Evaluation of Redbud Cultivars for Resistance to Canker Diseases Prevalent in Tennessee

Redbud (*Cercis* spp.) is one of the most popular deciduous flowering trees, and Tennessee is the number one redbud-producing state in the United States. However, large-scale production of redbud has been challenged by its susceptibility to canker pathogens. Propagation of redbud is commonly performed through grafting. Graft wounds can serve as entry points for fungal canker pathogens. The major objective of the study was to evaluate 12 different redbud cultivars for their susceptibility to canker disease in Tennessee. Field-grown 2-year-old redbud plants in a commercial nursery in Warren Co., TN, were uprooted in September 2023, and the whole plants (three replications per cultivar) were processed as 5 cm sections to identify canker-related symptoms. During the evaluation, the presence of necrotic bark, indicating an underlying canker, was observed at the graft union of all the examined cultivars. Canker symptoms were also observed on stems and branches. The average lesion length varied from 1.7 cm to 3.6 cm among the cultivars. Canker symptomatic tissues were plated on potato dextrose agar, with three pieces per plate, and 54 pieces for each cultivar. Isolates showing the morphological characteristics of *Diaporthe* spp., *Botryosphaeria* spp., *Fusarium* spp., and *Pestalotiopsis* spp. were recovered and confirmed using newly designed and published qPCR primers. *Diaporthe* spp. displayed the highest recovery in cultivar A (33.3%) and the lowest in F (5.6%). *Botryosphaeria* spp. showed the highest recovery in cultivar J (22.2%) and the least in O (3.7%). Moreover, *Fusarium* spp. showed maximal recovery in cultivar D (66.7%) and minimal in A (33.3%), while *Pestalotiopsis* spp. exhibited the highest recovery in cultivar O (25.9%) and the lowest in cultivar I and Q (1.9%). The species from these genera of fungi have recently been identified as canker-causing pathogens in redbud. Therefore, identifying the degree of susceptibility of redbud cultivars to these pathogens is important for sustainable disease management.