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Investigating the Survival and Growth of *Ceratobasidium* sp. in Eastern Redbud under Long-term Storage Condition

Abstract

Vascular streak dieback (VSD), caused by *Ceratobasidium* sp., is a significant threat to Eastern redbud (*Cercis canadensis* L.), a popular and high-value woody ornamental plant native to the eastern and south-central United States. Infected plants display a range of common symptoms, including leaf scorch, tip dieback, and vascular streaking that forms a distinctive marbled pattern in the stem cross-section. The disease results in the death of seedlings and causes severe dieback in mature plants. This research aims to investigate the survival of *Ceratobasidium* sp. in redbud plants under different storage conditions. To achieve this, 50 symptomatic redbud plants were divided into 10 groups, with each group consisting of 5 plants. These plants were transferred to the TSU Otis Floyd Nursery Research Center and stored at 4°C in dark conditions from November 2024 onwards. Each month a group of 5 plants were picked up and chopped into the pieces and processed using a surface sterilization protocol. The protocol involved sequential treatments with 10% bleach for 1 minute, 70% ethanol for 1 minute, and sterilized DI water for 30 seconds. A 0.1-gram portion of the stem sample was finely chopped and used to confirm pathogen identity, and total DNA was extracted using the DNeasy PowerLyzer Microbial Kit. Additionally, the bark of each plant was removed and chopped into small pieces using a sterilized blade. Two small pieces from each sample were cultured on quarter-strength PDA, the optimal medium for *Ceratobasidium* sp. growth. Ten Petri dish replications were used per sample, and weekly fungal growth was measured and calculated. This study is expected to reveal patterns in *Ceratobasidium* sp. growth during long-term storage condition, contributing to improved fungal detection and control. These findings will aid in sustaining ornamental nursery production in the southeastern U.S.A. and mitigate the economic losses associated with VSD.

Keywords: Vascular streak dieback, *Ceratobasidium* sp*.,* woody ornamental.