

DIFFERENTIAL GROWTH RESPONSE OF FUSARIUM CIRCINATUM ISOLATES FROM SOUTHEAST UNITED STATES TO INCREASED TEMPERATURES: IMPLICATIONS FOR A CHANGING CLIMATE

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Pitch canker is one of the major diseases in pines, affecting multiple species in forests and commercial plantations worldwide. This disease is incited by the necrotrophic fungus *Fusarium circinatum* and causes resinous lesions in stems and branches. Combinations of environmental conditions, especially high temperature and humidity, can trigger major outbreaks, but the pathogen may also remain latent as an endophyte without causing symptoms. In the context of increased global temperatures and altered precipitation regimes, future climate in the region may favor pitch canker outbreaks; however, current mitigation strategies rely mainly on breeding and selection of resistant host material, which takes many years to achieve. In an effort to foresee a potential disease scenario under elevated temperature conditions, a pilot study was implemented to determine growth patterns of *F. circinatum* isolates at 25, 28, and 31 °C. Preliminary growth data on cultured isolates collected from north and central Florida showed significant changes between cultures at 25 and 31 °C, suggesting latitude-associated differential response to temperature stress. Additional fungal isolates from other regions will be evaluated and pathogenicity tests on slash pine using selected isolates are also projected. The results of this study, along with our current knowledge on species-wide host susceptibility to pitch canker, would help implement an ideal platform to evaluate pathogen, host and environment, and assess the effects of this disease in a changing climate. Studying the effects of a climate change on pitch canker disease would also allow a better understanding of other host-pathogen systems and develop adequate prediction models to help implement more efficient mitigation efforts.

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