



Morphological and molecular characterization of *Fusarium* spp pathogenic to pecan tree in Brazil

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ABSTRACT. The occurrence of *Fusarium* spp associated with pecan tree (*Carya illinoensis*) diseases in Brazil has been observed in recent laboratory analyses in Rio Grande do Sul State. Thus, in this study, we i) obtained *Fusarium* isolates from plants with disease symptoms; ii) tested the pathogenicity of these *Fusarium* isolates to pecan; iii) characterized and grouped *Fusarium* isolates that were pathogenic to the pecan tree based on morphological characteristics; iv) identified *Fusarium* spp to the species complex level through *TEF-1a* sequencing; and v) compared the identification methods used in the study. Fifteen isolates collected from the inflorescences, roots, and

seeds of symptomatic plants (leaf necrosis or root rot) were used for pathogenicity tests. Morphological characterization was conducted using only pathogenic isolates, for a total of 11 isolates, based on the mycelial growth rate, sporulation, colony pigmentation, and conidial length and width variables. Pathogenic isolates were grouped based on morphological characteristics, and molecular characterization was performed by sequencing *TEF-1 α* genes. Pathogenic isolates belonging to the *Fusarium chlamydosporum* species complex, *Fusarium graminearum* species complex, *Fusarium proliferatum*, and *Fusarium oxysporum* were identified based on the *TEF-1 α* region. Morphological characteristics were used to effectively differentiate isolates and group the isolates according to genetic similarity, particularly conidial width, which emerged as a key morphological descriptor in this study.

Key words: Pathogenicity; Morphological characters; *TEF-1 α* ; Unweighted pair group method with arithmetic mean