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A rapid method for isolation of total DNA from pathogenic filamentous plant fungi

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ABSTRACT. DNA isolation from some fungal organisms of agronomic importance is difficult because they have cell walls or capsules that are relatively unsusceptible to lysis. We have developed a fast DNA isolation protocol for *Fusarium oxysporum*, which causes fusarium wilt disease in more than 100 plant species, and for *Pyrenochaeta terrestris*, which causes pink root in onions. This protocol was based on the sodium dodecyl sulfate/phenol method, without β-mercaptoethanol and without maceration in liquid nitrogen; it uses phenol/chloroform extraction to remove proteins and co-precipitated polysaccharides. The $A_{260/280}$ absorbance ratios of isolated DNA were around 1.9, suggesting that the DNA fraction was pure and may be used for further analysis. Additionally, the $A_{260/230}$ values were higher than 1.8, suggesting negligible contamination by polysaccharides. The DNA isolated by this protocol is of sufficient quality for molecular applications; this technique could be applied to other organisms that have similar substances that hinder DNA extraction.

Key words: Genomic DNA extraction; *Fusarium oxysporum*; *Pyrenochaeta terrestris*; Polymerase chain reaction; Filamentous fungi

