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Taxonomy of different *Fusarium* species using High Resolution Melting technique (Taxonomia de diferentes espécies de *Fusarium* usando High Resolution Melting)

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Fusarium species has a wide geographical distribution and some are economically and socially important in plants, animals, and humans. Consequently, correct identification is crucial to the efficiency of control strategies. *Fusarium* characterization and differentiation are obtained from morphological, biological, phylogenetic characters and according to host specificity. However, these methodologies can be imprecise, costly and difficult to use, due to the similar and insufficiency characters. Therefore, it is of extreme significance the use of biotechnological tools to identify, differentiate and correctly diagnose *Fusarium* species. High-resolution melting (HRM) assay is a powerful and cost-effective method for mutation scanning and SNP genotyping. The automated analytical molecular techniques measure the rate of dissociation of double- to single-stranded DNA, based on its melting curve profiles (TMs). This technique has been used already to diagnose viruses, bacteria, nematodes, fungi, and other plant pathogens due to its simplicity, accuracy, reproducibility and low-cost. The objective of this research was the characterization and identification of *Fusarium* species of three complex. DNA extractions of *F. ananatum*, *F. guttiforme*, *F. oxysporum* and *F. solani* were obtained and six primers developed from Actin (ACT; ACT2), Beta-tubulin (TUB), Calmodulin (CALM), Phosphoglycerate kinase (PGK), RNA polymerase II larger subunit (RPB1). Using the primers of ACT2, ACT, and CALM it was possible to distinguish the species of *F. ananatum*, *F. guttiforme*, *F. oxysporum*, and *F. solani*. In relation to the ACT primers, *F. ananatum* exhibited TM of 80.3°C, *F. guttiforme* 80.7°C, *F. solani* 80.5°C and *F. oxysporum* 80.4°C. The ACT2 region produced TM of 81.02°C for *F. oxysporum*, 81.5°C *F. guttiforme*, 81.3°C *F. ananatum* and 81.1°C *F. solani*. As for CALM region, TM was 82.5°C for *F. oxysporum*, 83.8°C *F. guttiforme*, 83.6°C *F. ananatum* and 83.4°C *F. solani*. However, the primers PGK, RPB1 and TUB did not allow the differentiation, and later analyzes are necessary to adapt them to the research. The results showed that the HRM technique can be used in taxonomic studies since it allows the characterization and differentiation of *Fusarium* species at the level of SNPs.

Palavras-chave: *Fusarium*; qPCR; HRM

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