ABSTRACT - APPLICATIONS OF BIOTECHNOLOGY IN ENVIRONMENTAL AND AGRICULTURAL AREAS;

MOLECULAR PHYLOGENY AND DIVERSITY OF MONILIOPHTHORA RORERI IN THE AMAZONAS, BRAZIL

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Moniliophthora roreri is the causal agent of frosty pod rot, a disease affecting fruits of Theobroma and Herrania species, including cacao and cupuaçu. First reported in Brazil in 2021 (Acre), the pathogen is currently present in four municipalities in the state of Amazonas. This study aimed to investigate the phylogenetic relationships of M. roreri isolates from the Amazonas using the internal transcribed spacer (ITS) region of rDNA. Fruit samples exhibiting extensive pseudo-stroma and sporulation were collected in 2023–2024 from Tabatinga and Benjamin Constant. DNA was extracted and subjected to PCR using ITS1 and ITS4 primers. A total of 36 samples were amplified and sequenced in both directions, generating consensus sequences spanning approximately 700 bp. The sequences obtained were aligned with 27 NCBI

sequences of M. roreri and related species. Phylogenetic analyses were performed in CIPRES portal using Maximum Likelihood and Bayesian Inference methods. All sequenced isolates were confirmed as M. roreri. Alignment revealed 17 mutations, including insertions, deletions, and substitutions, indicating polymorphism within the ITS region among local isolates and reference sequences. These results demonstrate the persistent presence and genetic diversity of M. roreri in the Amazonas, emphasizing the value of molecular tools as biotechnological approaches for epidemiological monitoring. The findings provide critical information for the development of management strategies to mitigate the impact of moniliasis on economically important crops and contribute to understanding the evolutionary dynamics of emerging pathogens in new environments.

Palavras-chave: moniliophthora roreri; frosty pod rot; molecular phylogeny; cacao; biotechnological monitoring.