

REVEALING SECONDARY METABOLITE ALTERATIONS IN FUNGAL ENDO-PHYTE SECRETOM

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Bioactive secondary metabolites produced by endophytic fungi hold significant promise for the pharmaceutical, food industries, and agriculture. Often, the genes responsible for these metabolites remain unexpressed under laboratory conditions due to the absence of specific nutrients found in their natural hosts. Nonetheless, the dormant biosynthetic pathways for these metabolites can be activated using epigenetic modifiers, which alter the chromatin structure of genomic DNA. In our study, we investigated the influence of valproic acid (VPA) and sodium butyrate (SB) as epigenetic modifiers to unveil the potential changes in the secondary metabolite profiles of an endophytic fungus. We employed mass spectrometric analysis to characterize the secondary metabolites of the treated fungal strains. The observed differences in metabolite production, induced by the epigenetic treatment, were rigorously analysed using statistical methods. Our findings suggest that epigenetic modification can serve as a potent strategy to unlock the biosynthetic potential of endophytic fungi, offering new avenues for the discovery of novel bioactive compounds. This work was supported by the bilateral project 2019-2.1.11-TÉT-2020-00148.