ANTIFUNGAL COMPOUNDS PRODUCED BY *Penicillium* sp. AGAINST *Phomopsis sojae*

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Abstract

Seed rot caused by the fungus *Phomopsis sojae* is one of the most common diseases of soybeans and is responsible for abortion pods in culture as well as prevent the development of cotyledons and primary leaves on infected seeds. The major forms of control this pathogen include crop rotation, seed treatment and proper soil management. However, these techniques do not guarantee an effective control of the disease, requiring the search for new ways of inhibiting the pathogen. The research of natural products produced by microorganisms are considered alternative sources to traditional forms in control of plant pathogens. Among these, the plant endophytic fungi has shown significant potential in discovering new molecules of interest due to their chemical and biological properties. Therefore, this study aimed the chemical and biological study of compounds produced by the endophytic fungus of the genus *Penicillium* isolated from the plant *Anthurium* sp. collected in Alcatrazes Island - SP. Thus, the endophytic fungus was grown in liquid medium (2% malt) and the crude extract obtained was partitioned using ethyl acetate (1 : 1) and subjected to chromatographic separation monitored by *in vitro* inhibition of mycelial growth of pathogen *Phomopsis sojae*. The selected fractions had their chemical profile analyzed by HPLC-UV-MS-ELS and compared in the database. Four active fractions were obtained (Fa1a, Fa1b, Fa7a and Fa7c) that showed inhibition values of 33.15%, 32.12%, 7%, and 19.8%, respectively. Through the analysis of the mass spectra were observed *m/*z values common for all 4 compounds, 233.1 $[M\text{-}H_2O]^+$, 251.2 $[M+H]^+$ e 273.1 $[M+Na]^+$, corresponding to Citrinin compound, a mycotoxin from the class of benzopyrans commonly isolated from fungi of *Penicillium, Aspergillus* and *Monascus*. However, when comparing the four compounds with commercial standard of Citrinin (Sigma®) under the same conditions, the isolated compounds were divergent in retention time, suggesting the possibility of isomers. Thus, additional spectroscopic analyzes are necessary to establish the identity of these compounds aiming their use as a fungicidal agent against *Phompsis sojae*.

Keywords: Natural products, phytopathogen, seed rot, soybean

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