

TITLE: ASSESSMENT OF MEDICINE RESISTENCE OF THE ENDOPHYTIC FUNGUS *Curvularia sp.* ISOLATED FROM *Cabralea canjerana*

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ABSTRACT:

An important characteristic of fungi is their interaction with the ecosystem, as they promote the biotransformation of different compounds in response to environmental stimuli. Endophytic fungi live mutualistically with plant tissues and may contribute to the host's development. The *Cabralea canjerana* (Vell.) Mart. is a native Brazilian tree involved with activities of biotechnological interest, such as biological pest control. Microbiological products and processes offer economic and environmental advantages, however, the potential of the endophytic fungi from this plant have not yet been explored. The present study aimed to evaluate the medicine resistance of *Curvularia sp.* isolated from *C. canjerana* against five therapeutic classes: hormones (estradiol - T1); antidepressants (amitriptyline - T2 and fluoxetine - T3); and antimicrobials (amoxicillin – T4, fluconazole - T5); antipyretics and non-steroidal anti-inflammatory drugs (dipyron, acetylsalicylic acid, ibuprofen, acetaminophen, and diclofenac – T6), the most used medicines in the city of Foz do Iguaçu-PR, according to the health department. The fungus was previously cultivated in Petri dish containing PDA medium (Potato Dextrose Agar), and then fungal mycelia were transferred to test tubes containing 3 mL of minimal medium with 5% glucose, enriched with a solution of the drugs (separately for each therapeutic class) with a final concentration of 10 mg.L⁻¹. The tubes were incubated for 48h at 28 °C and 150 rpm agitation, and then 300 µL of a 0.5% TTC (trimethyl-tetrazolium chloride) solution were added to the cultures, which were incubated under the same conditions for 2h. Cell viability was verified in a microplate reader (Celer© Polaris) at a wavelength of 450 nm. The positive control consisted of minimal medium with the fungus, the negative controls consisted of minimal medium and minimal medium plus the drug. The tests were performed in triplicate. The average observed absorbances (nm) were 0.081 for the positive control, 0.138 for T1, 0.186 for T2, 0.245 for T3, 0.033 for T4, 0.031 for T5 and 0.300 for T6, showing that the fungus was able to thrive in the presence of all medicines, except in the presence of both antimicrobials. The tests showed that *Curvularia sp.* was not only resistant to the tested medicines, but also grew more in their presence in comparison to the positive control, revealing potential for future trials aiming the removal of these compounds from the environment.

Keywords: fungal activity, drug resistance, biodegradation

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