

ANTI-GLYCATION ACTIVITY OF THE EXTRACTS FROM THE BIOTRANSFORMATION OF RUTIN BY *Guignardia* sp.

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ABSTRACT

Biotransformation is a chemical reaction performed by a biological agent, where occurs the conversion of a substrate into products through enzymatic catalysts. The substances of the class of flavonoids present several biological activities among which the most significant are the antioxidant, anti-inflammatory and anti-glycation activities. Optimization of these activities can be carried out by biotechnological processes such as biotransformation and semi-synthesis. In this study we used an endophytic strain of *Guignardia* sp. for biotransform rutin, a bioactive flavonoid, and assess the antibacterial and anti-glycation activity of the derivatives. This strain, isolated from *Murraya paniculata* in Manaus-AM and preserved in the collection of microorganisms of the Laboratory of Bioassays and Microorganisms of the Amazon - LabMicra/CA/CAM, was reactivated in BDA culture medium, for 8 days at 28 °C. After, three fragments were cultured in 20 mL of culture medium Sabouraud agar, with 50% of glucose decreased, and after 5 days of growth 10 mg of rutin were added and the system was cultivated for 10 more days. After this time the mycelium was separated from the liquid medium and extracted with methanol (2 times) and the liquid medium was extracted in SPE. The extracts obtained were analyzed in a mass spectrometer apparatus (Thermo Fisher, model Ion trap - LCQ Fleet) equipped with an electrospray ionization source (ESI), in negative ion mode. To analysis the formation of anti-glycation products, it was used a spectrofluorimetric method, with excitation wavelength at 370 nm and measurement at 440 nm of emission. All experiments were conducted in triplicate. In the analysis by mass spectrometry Rutin was not detected, but there was the emergence of other ions (m/z 575 and m/z 721). It is possible to infer that rutin has been consumed by the fungus. In the standard spectrofluorimetric test, the extracts of the experiment of bioconversion of Rutin by *Guignardia* sp. presented significant anti-glycation activity (80% inhibition), close to the standard value (commercial Rutin, near 90% inhibition), while the control solution showed formation of glycation products at 100%. In view of these results, studies will be conducted to confirm whether the biotransformation occurs, and if the ions found can be responsible for the anti-glycation activity.

Keywords: Endophytic fungi, flavonoids, biotransformation, glycation

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