

ISOLATION AND IDENTIFICATION OF FUNGI FROM SOIL OF THE AMAZON FOREST WITH INTEREST FOR PRODUCTION OF EXTRACELLULAR GLUCOSE OXIDASE

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Abstract

Amazon forest presents a wide variety of fungi, especially from the ground that has moisture and nutrients necessary for the growth of these microorganisms. Therefore, less than 10% of these microorganisms have been characterized and described which enables the discovery of new species. Further, fungi shows a relevant importance for biotechnology fields due to they carry a powerful enzymatic variety less studied and with various biotechnological applications. Among various enzymes, there is the glucose oxidase that has many applications especially in the food industry and pharmaceutical, in panification, production of wine and oral hygiene products. In addition, glucose oxidase is used to enzymatic biomarkers as source of fungi production as well. The present study has as objective isolation and identification of soil fungi from Amazon forest with interest for production of extracellular glucose oxidase. For that reason, the collect was performed in the Reserve Adolpho Ducke forest located in Manaus city between two major drainage basins: the Amazon River and the other to Negro River. The samples were collected with a distance of approximately 20 meters and a depth of 10 cm. A conventional technique of successive dilution was done for isolate the organisms. Then, samples were plated with Potato Dextrose Agar medium all performed in triplicate. Thus, colonies obtained were purified by streaking method with monosporic cultivation and submitted for identification. They were identified by macroscopic observation of colonies (color, texture, pigmentation, roughness) also their microscopic characteristics using identification key. They were kept in three distinct forms: mineral oil, hydro preservation and cryopreservation. As a result, 100 strains were isolated and obtained high variety of genres, but the most frequent were *Aspergillus sp.* (n= 41) and *Penicillium sp.* (n= 33) these stood out from the others because they have common occurrence in other ecosystems. The other genre found were *Trichoderma sp.* (n= 13), *Fusarium sp.* (n= 03), *Acremonium sp.* (n= 01), *Rhodotorula sp.* (n= 02), *Oidiodendron sp.* (n= 03) and *Paecilomyces sp.* (n= 03). Thus, this study demonstrated the existence of microorganisms producers of glucose oxidase, according to the literature, and the results serve as additional information for study and selection of the best producers of glucose oxidase from strains isolated in Amazon.

Key words: enzyme, filamentous fungi, ground
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