

TITLE: AMILASE PRODUCTION FOR A NEW SPECIES OF THE GENUS *PENICILLIUM*, SECTION *CITRINA* ISOLATED FROM A SANDBANK

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ABSTRACT:

Penicillium is a diverse genus widely distributed. The isolates of the genus are able to degrade cellulose, hemicellulose, starch and proteins and therefore occupy a prominent position in the recycling of organic matter. Species of this genus also produce biomolecules of biotechnological interest, such as antimicrobials and enzymes. Among the enzymes, the amylases are considered one of the most important for the industry, because they are used in the production of beers, baking and animal feed. Therefore, the objective of this work was to evaluate the amylase production by a new species of the genus *Penicillium*, section *Citrina*, isolated from the leaf litter of the periodically flooded forest of Guaibim Restinga, Bahia. Five isolates of the new species were obtained with a semi-selective medium containing microcrystalline cellulose as the sole source of carbon. The identification of the isolates was performed by morphological analysis and by molecular phylogeny by the sequencing of the beta-tubulin and calmodulin regions. The production of the enzyme was evaluated in Petri dishes. Mycelial discs of 8 mm from the colonies of each isolate were transferred to the center of Petri dishes with mineral salts medium supplemented with starch as the sole carbon source. For the determination of the amylolytic activity after 6 days were transferred 2 ml of Lugol solution (5 g KI, 1 g of iodine, 100 ml of distilled water) on the surface of the culture medium. After 10 min of incubation the formation of the hydrolysis halo around the colonies was analyzed. Amylase production was evaluated by the Enzymatic Index, expressed according to the following equation: EI = hydrolysis zone diameter (mm) / colony diameter (mm). Morphological analyses and molecular phylogeny confirmed that this yet undescribed species is closely related to *P. sumatrense*. EI did not vary significantly among isolates 13MTN (1.27), 7MTN (1.18), 4MTN (1.17), 15MTN (1.14) and 3MTN (1.06). These results showed that the isolates of the new species of the genus *Penicillium* sp. presented potential for amylases production.

KEYWORDS: biotechnology, enzyme, starch

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