**TITLE:** DETERMINATION OF OPTIMUM PARAMETERS FOR AMYLASES PRODUCTION BY *Aspergillus niger*, USING SWEET POTATO PEEL AS ALTERNATIVE SUBSTRATE

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**ABSTRACT:** Filamentous fungi are the most used for enzyme production because their ability to secrete large quantities of proteins in the culture medium. Amylases promote the hydrolysis of starch into reducing sugars. They have important biotechnological applications in the pharmaceutical, textile, detergent and food industries. In order to reduce enzyme production cost, altenative substrates Due to the high cost of production of these enzymes, the use of alternative substrates as agroindustrial residues warrants evaluation. This work aimed to establish the optimal parameters for the production of amylases by an *Aspergillus niger* strain isolated from Araucaria Forest soil, Mata Atlantic biome. The fungus was grown on Vogel's solid medium containing 1.5% (m/v) glucose and 1.5% (m/v) agar, at 28 ºC, for 7 days for conidia production. Submerged fermentation was carried out in 125 ml flasks containing 25 ml of Vogel's liquid medium inoculated with 1.0 ml spore suspension (1.0 x $10^7$ spores/ml) under incubation periods and conditions specified for each experiment. The cultures were vacuum filtered and the crude filtrate was used as the source of extracellular enzymes. The determination of the amylase activity was performed by quantification of reducing sugars released by using the 3,5-dinitrosalicylic acid reagent. The amylase activity was higher when *A. niger* was grown in the presence of 1.5% sweet potato peel, corresponding to 4.24 U $mL^{-1}$. In relation to production kinetics, the highest production levels were achieved when the fungus was cultivated for six days (4.36 U $mL^{-1}$). Furthermore, the highest amylase titers were observed when the pH of the medium and the incubation temperature were 6.5 (4.30 U $mL^{-1}$) and 30 ° C (4.74 U $mL^{-1}$), respectively. These results reveal the great potential of this fungal strain to produce amylases using sweet potato peel as substrate, an inexpensive agroindustrial residue.

**KEYWORDS:** Submerged fermentation, Filamentous fungi, Agroindustrial waste

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