

Use of cassava peel as carbon source for production of amylolytic enzymes by *Aspergillus niveus*

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Amylases hydrolyze starch in glucose, maltose and maltooligosaccharides. They are classified as endoamylases, which hydrolyze α -1,4 linkages into the starch molecule, and exoamylases, which act at the non reducing end. They are obtained from several sources, such as plants, animals and microorganisms. The enzymes from microbial sources generally have industrial demands. *Aspergillus niveus* produced high levels of α -amylase and glucoamylase in submerged fermentation using the cassava peel agricultural residue, as carbon source. In static conditions the amylase production was substantially greater than agitation condition. The optimized culture conditions were initial pH 5.0, at 35°C during 48 hours. Amylolytic activity was still improved (50%) with a mixture of cassava peel and soluble starch in the proportion 1:1 (w/w). The crude extract exhibited optima temperature and pH at 70°C and 4.5, respectively. Amylase activity was fully stable for 1 h at 60°C, and at pH values between 3.0 and 8.0. The enzyme hydrolyzed preferentially maltose, starch, penetrose, amylose, isomaltose, maltotriose, glycogen and amylopectin but not hydrolyzed cyclodextrin (α and β), trehalose and sucrose. In the first 10 min of assay on soluble starch the hydrolysis end-products were glucose and maltose but only glucose was detected after 30 min of hydrolysis, confirming the presence in the crude extract of an α -amylase and a glucoamylase.

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