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Optimization of protein enrichment of fruit peels by mixed culture of *Phanerochaete chrysosporium* and *Schizophyllum commune* as animal feed supplement (Article)

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Abstract

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Optimization of the process conditions of mixed culture of basidiomycete fungi for improved protein enrichment of fruit peels is necessary to ease replication and scale-up processes. Sixday fermentation period and temperature of 32°C were optimum for elevated protein synthesis and enzyme activities (78.99 units/ml for α -amylase and 0.36 units/ml for cellulase). A highly significant quadratic model obtained from Face Centered Central Composite Design (FCCCD) described the process optimization. Linear effect of pH and inoculum size were significant ($p < 0.05$) while pH and moisture content (MC) interact significantly. 70.2% MC, pH 5.4 and 6.1% inoculum were the optimum level for a maximum crude protein synthesis of 198.77 mg/g. The crude protein contained essential and non-essential amino acid at a comparable level with other bioprocessed materials that are currently used as animal feed supplement. © All Rights Reserved.

Author keywords

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