OPTIMIZED PRODUCTION AND ISOLATION OF TANNASE ENZYMES FROM THE MUCOROMYCOTA FUNGUS *MUCOR CORTICOLUS*

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Tannases can cleave ester and depside bonds present in hydrolysable and complex tannins, and gallic acid esters. In the food industry, these enzymes can be used as a clarifying catalyst in wine and fruit juices. Tannases can release health-protective phenolic compounds from plant materials ensuring their bioavailability for the human body after consumption. Some extracellular enzymes in Mucoromycota fungi have already been thoroughly studied, but their tannases have been less examined so far. Our previous investigations, however, revealed a high tannase activity for the *Mucor corticolus* belonging to this fungal group. Here, the goal was to optimize the solid-state production and isolation processes of the *M. corticolus* tannase activity identified. Fermentation conditions testing grape pomace and wheat bran as substrates were used to optimize the tannase production yield, while the extraction efficiency was studied by various extraction buffers. Enzyme activity assays were performed following the methanolic rhodanine method. The fermentation system based on wheat bran and supplemented with tannic acid resulted in the highest enzyme production yield. The Tris buffer extraction and syringe filtration followed by anion exchange chromatography was the most effective purification method to obtain fractions with high tannase activity. Optimum temperature condition for the isolated tannase activity was 30 °C. In conclusion, the *M. corticolus* was a promising tannase producer on wheat bran; as we know, this was the first work to purify tannase activity from Mucoromycota.
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