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The Mechanism of Activation by Sodium Chloride on the Protease Production Using Salt-Tolerant Mushroom

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Summary

Five salt-tolerant mushrooms grown on agar plate containing 7.5% NaCl were cultivated in the solid-state medium with wheat bran containing 3% NaCl. The protease activities at 0% and 5% NaCl in the assay mixture were measured. The protease from *Schizophyllum commune* NBRC 4928 showed the highest values of enzyme activity and salt-tolerance among the 5 salt-tolerant mushrooms tested. The kind of buffer to extract the protease and the optimum temperature of enzyme activity were investigated with *S. commune* NBRC 4928. As a result, the optimal buffer to extract for salt-tolerant protease was 0.1M acetate buffer (pH 4.5). The optimal temperature of the protease was 65°C at 10% NaCl in the enzyme assay mixture. Influence of NaCl concentration in enzyme assay mixture was studied about the salt-tolerance of the protease. The protease activities at 5 and 10% NaCl concentration in enzyme assay mixture were accelerated and activated by NaCl. In the storage of protease in 10% NaCl solution at 25°C, the protease from *S. commune* NBRC 4928 maintained the initial enzyme activity for 24 hr. The stability of a protease produced by a salt-tolerant mushroom was excellent on the condition of high concentration of NaCl.