

Abstract

Soy sauce is a popular food commodity especially in Southeast Asian region. In order to be awarded the Ministry of Industry's Seal of Standards, there should be at least 5.5% protein content in soy sauce as analysed by the Kjeldahl method. Research should therefore be conducted to increase protein content in soy sauce to raise standards of commodity for local consumption and for export. One way to increase protein content in soy sauce is to add protease powder into the *moromi* stage of soy sauce production. In the following experiments, a bacterium *Bacillus subtilis* T25 which produced protease (55.6 unit.ml⁻¹) when cultured in Medium 73 at pH 5.5, was isolated and identified. The protease was partially purified by ammonium sulfate precipitation and dialysis. The resultant solution was powderized by lyophilization. The protease powder was found to exhibit a maximum protease activity of 12.5 unit.mg⁻¹ at pH 7.0 indicating that it was a neutral protease. The activities were found to reduce to 4.5 unit.mg⁻¹, 2 unit.mg⁻¹ and 0.5 unit.mg⁻¹ when assayed at pH 6.5, 6.0 and 5.5 respectively. The results indicated the isolation of a neutral protease-producing bacterium with remaining protease activities when assayed at acidic pHs. Experimental results revealed that the protease powder could be kept either under vacuum packaging at -20°C or in a plastic bag at -20°C for at least 12 days without losing protease activity. The result of adding protease powder at the final concentration of 2 unit.ml⁻¹ into the *moromi* stage of soy sauce fermentation showed an increase of protein content in soy sauce fermentation broth from 6.0% to 8.8%.