

Thesis Title	Purification and Characterization of Halophilic Protease by Halophilic Bacteria Isolated from Fermenting Fish Sauce
Thesis Credits	12
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Abstract

Growth and protease production of *Halobacterium* strains isolated from fermenting fish sauce were studied. The isolate IOR-25 gave the highest protease activity. The optimum pH and salt concentration for growth and enzyme production of this isolate were pH 6.0 and 25% salt (w/v), respectively. Salt concentration affected cell morphology, growth, and enzyme production. At 25% (w/v) salt concentration, cells were rod-shaped. Cells became coccoid shape when the salt concentration was decreased to 10% (w/v). No cell multiplication as well as protease production was observed at 10% (w/v) salt concentration or lower. The bacterial cells could not withstand the condition of absence of salt in the medium.

Purification of extracellular halophilic proteases of *Halobacterium* isolate IOR-25, using bacitracin-Sepharose 4B affinity chromatography, could increase the protease activity up to 20-fold of the crude enzyme. The optimum conditions for enzyme activity of the purified protease were pH 6.0, 55 °C, and 25% (w/v) salt concentration, respectively. The enzymes were classified to be serine proteases for completely inactivation by Phenyl methyl sulfonyl fluoride (PMSF). After electrophoresis on SDS-polyacrylamide gels, the purified enzymes gave two protein bands at M_r 101 KDa and 47 KDa.