

## **ABSTRACT**

### **ISOLATION AND CHARACTERIZATION OF PROTEASE ENZYME AND ANTIBIOTIC ACTIVITIES MICROORGANISM FROM TAUCO**

**By**

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Tauco is one of fermented foods that has protease producing bacteria potentially to be explored. This study was aimed to select isolates of proteolytic bacteria that produce high protease enzymes. Based on isolation results with spread plate method 15 candidates were obtained. After screening stage using streak plate method, based on the proteolytic index and its unit activity of the enzyme that measured by Kunitz method, three isolates were selected. The isolates were A.4.6, A.5.2 and A.5.8. The isolates showed the high enzyme activity and the highest activity was achieved by isolate A.5.2 that were 15336 U/mL and 14432 U/mg for its unit and specific activity, respectively. The three selected isolates also showed antibiotic activity with the highest inhibiting zone for isolate A.5.2 of 5.6 mm in diameter. Three selected isolates were motile and gram-negative.

**Keywords:** Proteolytic Bacteria, Protease Enzyme, Tauco Fermentation, Degradation of Protease.

## ABSTRAK

### ISOLASI DAN KARAKTERISASI ENZIM PROTEASE DAN UJI KEMAMPUAN ANTIBIOTIK MIKROBA DARI TAUCO

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Tauco merupakan salah satu pangan fermentasi yang mempunyai bakteri penghasil protease yang berpotensi untuk dieksplor. Penelitian ini bertujuan untuk mengetahui isolat bakteri proteolitik yang menghasilkan enzim protease tertinggi. Berdasarkan hasil isolasi dengan metode *spread plate* diperoleh 15 isolat kandidat. Setelah melalui tahap skrining dengan metode *streak plate* berdasarkan indeks proteolitik dan pengukuran aktivitas unit enzim dengan metode Kunitz terpilih tiga isolat yaitu isolat A.4.6, A.5.2 dan A.5.8. Tiga isolat terpilih menunjukkan aktivitas enzim yang tinggi dan aktivitas tertinggi pada isolat A.5.2 yaitu 15336 U/mL dan 14432 U/mg untuk aktivitas unit dan aktivitas spesifiknya berturut-turut. Tiga isolat terpilih juga menunjukkan aktivitas antibiotik dengan zona hambat tertinggi pada isolat A.5.2 yaitu sebesar 5,6 mm diameter. Tiga isolat terpilih bersifat motil dan berjenis gram negatif.

**Kata kunci:** *Bakteri Proteolitik, Enzim Protease, Fermentasi Tauco, Degradasi protein.*