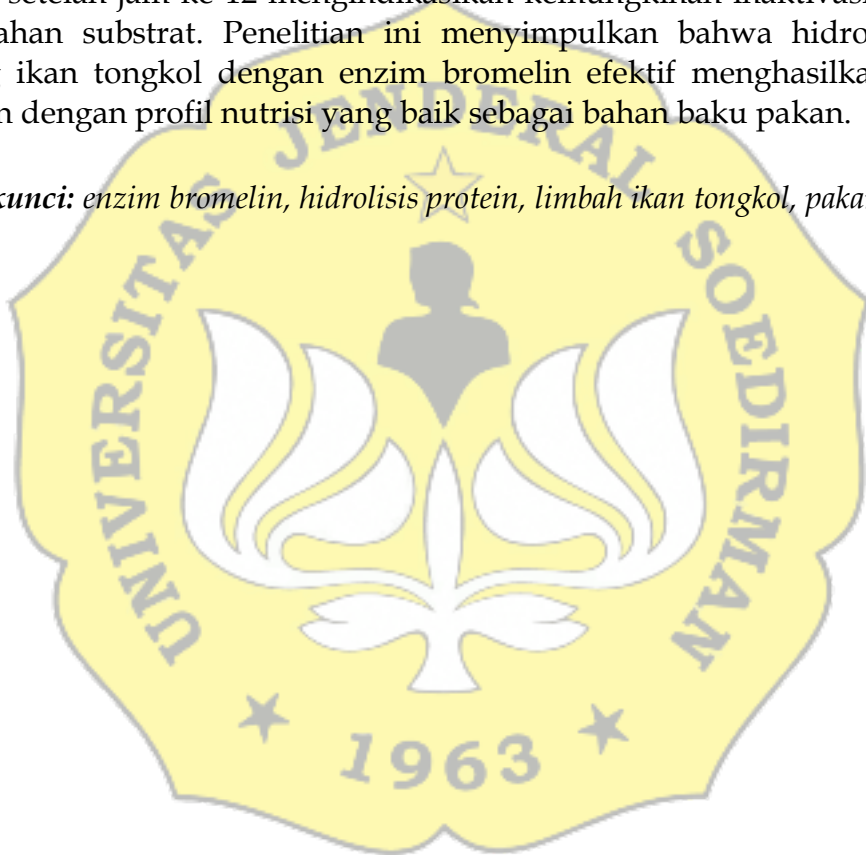


ABSTRAK

Limbah tulang ikan tongkol (*Euthynnus affinis*) berpotensi sebagai sumber protein alternatif. Penelitian ini bertujuan mengoptimalkan hidrolisis protein dari limbah tersebut menggunakan enzim bromelin. Variasi waktu hidrolisis (0, 6, 12, 18, 24, 30, dan 36 jam) diaplikasikan dengan konsentrasi enzim 5% dari berat tepung tulang ikan tongkol. Aktivitas enzim diukur menggunakan metode spektrofotometri, dan hidrolisat dianalisis kandungan protein dan profil asam aminonya. Hasil penelitian menunjukkan bahwa aktivitas enzim bromelin mencapai puncak pada jam ke-12. Hidrolisat yang dihasilkan memiliki kandungan protein tinggi (63,95%) dan 18 asam amino, termasuk asam amino esensial seperti *L-Lysine* (4,17%) dan *L-Leucine* (3,29%). Penurunan aktivitas enzim setelah jam ke-12 mengindikasikan kemungkinan inaktivasi enzim atau perubahan substrat. Penelitian ini menyimpulkan bahwa hidrolisis limbah tulang ikan tongkol dengan enzim bromelin efektif menghasilkan hidrolisat protein dengan profil nutrisi yang baik sebagai bahan baku pakan.

Kata kunci: enzim bromelin, hidrolisis protein, limbah ikan tongkol, pakan



ABSTRACT

Skipjack tuna (Euthynnus affinis) bone waste has potential as an alternative protein source. This research aimed to optimize protein hydrolysis from this waste using the bromelain enzyme. Variations in hydrolysis time (0, 6, 12, 18, 24, 30, and 36 hours) were applied with an enzyme concentration of 5% of the skipjack tuna bone meal weight. Enzyme activity was measured using a spectrophotometry method, and the hydrolysate was analyzed for protein content and amino acid profile. The results showed that bromelain enzyme activity peaked at the 12th hour. The resulting hydrolysate had a high protein content (63.95%) and contained 18 amino acids, including essential amino acids such as L-Lysine (4.17%) and L-Leucine (3.29%). The decreased enzyme activity after the 12th hour indicates possible enzyme inactivation or substrate changes. This research concludes that skipjack tuna bone waste hydrolysis with bromelain enzyme effectively produces a protein hydrolysate with a good nutritional profile as a feed material.

Keywords: *bromelain enzyme, protein hydrolysis, fish waste, feed*

