

ABSTRAK

Ikan kembung mengandung protein yang tinggi sehingga mengandung asam amino yang tinggi, namun tidak semua asam amino ikan kembung dapat dicerna oleh tubuh. Cara alternatif untuk memecah protein menjadi asam amino yang dapat meningkatkan kualitas hidrolisat ikan kembung berdasarkan tingginya kadar asam amino yang mudah diserap oleh tubuh menggunakan metode hidrolisis enzimatis penambahan enzim bromelin, papain, dan protease *Bacillus megaterium* dengan konsentrasi 4,5 %; 5 %; dan 5,5 %. Hidrolisat yang didapatkan dianalisis protein terlarutnya menggunakan metode Bradford, kemudian dilakukan analisis bobot molekul menggunakan metode SDS-Page, dan hasil kadar asam amino dianalisis dengan metode HPLC. Hasil penelitian ini menunjukkan kadar protein terlarut tertinggi adalah variasi hidrolisat penambahan enzim protease *Bacillus megaterium* konsentrasi 5,5% sebesar 143,806 µg/mL. Hasil uji bobot molekul protein terkecil ditunjukkan pada variasi hidrolisat penambahan enzim papain sebesar 10,36 dan 36,03 kDa. Hasil analisis kadar asam amino menunjukkan variasi yang memiliki kandungan total asam amino bebas paling tinggi adalah variasi penambahan enzim protease *Bacillus megaterium* sebesar 7,8914 % dan variasi yang mengandung asam amino bebas terlengkap adalah variasi penambahan enzim papain mengandung 14 asam amino bebas. Enzim dapat membantu hidrolisis protein yang terkandung dalam ikan kembung, karena hasil analisis hidrolisat penambahan enzim memiliki kadar lebih baik dibandingkan hidrolisat tanpa penambahan enzim. Variasi hidrolisat tanpa penambahan enzim hanya mengandung protein terlarut sebesar 1,262 µg/mL, dengan bobot molekul protein sebesar 116,45 dan 100,57 kDa, dan hanya mengandung 12 asam amino bebas dengan kadar total 3,7168 %.

Kata kunci: Protein, asam amino, hidrolisis enzimatis, ikan kembung

ABSTRACT

Mackerel contains high protein so it contains high levels of amino acids, but not all of the amino acids in mackerel can be digested by the body. An alternative way to break down protein into amino acids that the body can digest is enzymatic hydrolysis. This research aims to improve the quality of mackerel hydrolyzate based on the high levels of amino acids that are easily absorbed by the body using the enzymatic hydrolysis method adding the enzymes bromelain, papain, and *Bacillus megaterium* protease at a concentration of 4.5%; 5 %; and 5.5%. The hydrolyzate obtained was analyzed for dissolved protein using the Bradford method, then molecular weight analysis was carried out using the SDS-Page method, and the results of amino acid levels were analyzed using the HPLC method. The results of this study showed that the highest soluble protein content was a variation of the hydrolyzate with the addition of the *Bacillus megaterium* protease enzyme at a concentration of 5.5%, amounting to 143,806 µg/mL. The smallest protein molecular weight test results were shown in the hydrolyzate variation with the addition of the papain enzyme at 10.36 and 36.03 kDa. The results of the analysis of amino acid levels showed that the variation with the highest total free amino acid content was the variation with the addition of the *Bacillus megaterium* protease enzyme at 7.8914% and the variation containing the most complete free amino acids was the variation with the addition of the papain enzyme containing 14 free amino acids. Enzymes can help hydrolyze the protein contained in mackerel, because the results of the analysis of the hydrolyzate with the addition of enzymes have better levels than the hydrolysates without the addition of enzymes. The hydrolyzate variation without the addition of enzymes only contains dissolved protein of 1.262 µg/mL, with a protein molecular weight of 116.45 and 100.57 kDa, and only contains 12 free amino acids with a total content of 3.7168%.

Keywords: Protein, amino acids, enzymatic hydrolysis, mackerel