

ABSTRAK

Hidrolisis protein merupakan suatu metode untuk menghasilkan peptida dan asam amino yang lebih sederhana melalui proses penguraian protein dan disebut hidrolisat protein. Azolla merupakan tanaman air yang masih jarang dimanfaatkan, namun memiliki kandungan nutrisi yang cukup tinggi. Tujuan penelitian ini untuk mengetahui pengaruh lama waktu hidrolisis protein azolla terhadap pH, suhu, dan aktifitas enzim hidrolisat protein menggunakan enzim papain, serta mengetahui komposisi asam amino dan nutrisi hidrolisat protein Azolla menggunakan enzim papain. Metode yang digunakan adalah penelitian eksperimental menggunakan Rancangan Acak Lengkap (RAL) dengan 7 perlakuan dan 3 kali ulangan, yaitu pengamatan hidrolisat protein azolla selama 0 jam (P0), 6 jam (P1), 12 jam (P2), 18 jam (P3), 24 jam (P4), 30 jam (P5), dan 36 jam (P6). Perlakuan terbaik masing-masing parameter yaitu pada P4 (24 jam) dengan nilai pH 6,67, suhu 24,33°C, dan aktivitas enzim 2,47. Hidrolisat protein Azolla menggunakan enzim papain memiliki 18 jenis asam amino terdiri dari 9 jenis asam amino esensial dan 9 jenis asam amino non esensial, serta memiliki kadar air (10,00%), abu (26,12%), lemak (2,37%), protein (29,26%), dan karbohidrat (32,26%).

Kata kunci : Hidrolisat Protein, Azolla, Enzim Papain, Aktivitas Enzim, Asam Amino

ABSTRACT

Protein hydrolysis is a method for producing simpler peptides and amino acids through the process of protein breakdown, known as protein hydrolysate. Azolla is an aquatic plant that is still rarely utilized, but has a fairly high nutritional content. The objective of this study is to determine the effect of protein hydrolysis duration on pH, temperature, and protein hydrolysate enzyme activity using papain enzyme, as well as to determine the amino acid composition and nutritional content of Azolla protein hydrolysate using papain enzyme. The method used is an experimental study employing a Completely Randomized Design (CRD) with 7 treatments and 3 replications, namely observing Azolla protein hydrolysate at 0 hours (P0), 6 hours (P1), 12 hours (P2), 18 hours (P3), 24 hours (P4), 30 hours (P5), and 36 hours (P6). The best treatment for each parameter was at P4 (24 hours) with a pH value of 6.67, temperature of 24.33°C, and enzyme activity of 2.47. The protein hydrolysate of Azolla using papain enzyme contains 18 types of amino acids, including 9 essential amino acids and 9 non-essential amino acids, as well as moisture content (10.00%), ash (26.12%), fat (2.37%), protein (29.26%), and carbohydrates (32.26%).

Keywords: Protein Hydrolysate, Azolla, Papain Enzymes, Enzyme Activity, Amino Acids