

INTISARI

PENGARUH DURASI FERMENTASI HIDROLISAT JEROAN LELE DENGAN ENZIM BROMELIN TERHADAP KANDUNGAN HARA PUPUK ORGANIK CAIR

Penelitian ini bertujuan menganalisis pengaruh lama waktu fermentasi dengan *pretreatment* enzim bromelin terhadap mutu pupuk organik cair (POC) berbahan dasar jeroan ikan lele. Metode penelitian yang digunakan yaitu *pretreatment* hidrolisis jeroan ikan lele dengan enzim bromelin 5% pada suhu 55°C & pH 7, selama 5 jam, serta fermentasi pada suhu ruang dengan perlakuan lama waktu 3, 6, 9, 12, dan 15 hari, dengan 0 hari sebagai kontrol, menggunakan penambahan EM4, molase, dan hati batang pisang. Parameter mutu hidrolisat jeroan ikan lele yaitu kadar protein, lemak, abu, air, karbohidrat, pH, rendemen, derajat hidrolisis, serta mutu POC yaitu N, P, K, C-organik, pH, kadar air, dan rendemen. Mutu hidrolisat limbah jeroan ikan lele dengan *Pretreatment* enzim bromelin 5% yaitu kadar protein 13,96%, lemak 1,05%, abu 4,59%, air 78,56%, karbohidrat 1,85%, pH 7,62%, rendemen 97,78%, dan derajat hidrolisis 84,82%. Mutu POC dengan kadar N pada fermentasi hari ke-0,3,6,9,12,15 masing-masing: 0,224; 1,089; 1,949; 2,250; 2,127; 1,812%. Kadar P (0,195; 0,783; 1,567; 2,072; 1,666; 1,270%). Kadar K (0,191; 0,535; 1,367; 2,114; 1,766; 1,362%). Kadar C-organik terendah pada fermentasi hari ke-15 (33,60%); pH 4,68, rendemen 89,86%, dan kadar air 87,72%. Kandungan N, P, K, & C-organik memenuhi standar mutu POC (Keputusan Menteri Pertanian Republik Indonesia Nomor 261 Tahun 2019). Perlakuan *pretreatment* enzim bromelin 5% dan waktu fermentasi hari ke-9 efektif menghasilkan mutu POC terbaik, sehingga berpotensi dapat meningkatkan populasi fitoplankton.

Kata kunci: jeroan ikan lele, bromelin, hidrolisis, fermentasi, POC, mutu

ABSTRACT

THE EFFECT OF FERMENTATION DURATION OF BROMELAIN ENZYME HYDROLIZED CATFISH VISCERAS ON THE NUTRIENT CONTENT OF LIQUID ORGANIC FERTILIZER

This study aimed to evaluate the effects of fermentation duration combined with bromelain enzyme pretreatment on the quality of liquid organic fertilizer (LOF) produced from catfish offal. The research method used was the pretreatment of catfish offal hydrolysis with 5% of bromelain enzyme at 55°C and pH 7 for 5 hours, as well as fermentation at room temperature with treatment durations of 3, 6, 9, 12, and 15 days, with 0 days as the control, using the addition of EM4, molasses, and the inner part of banana stems. Quality parameters analyzed included protein, fat, ash, moisture, carbohydrate, pH, yield, degree of hydrolysis, and nutrient composition (N, P, K, organic carbon). The 5% bromelain pretreatment produced a hydrolysate containing 13.96% protein, 1.05% fat, 4.59% ash, 78.56% moisture, 1.85% carbohydrate, pH 7.62, 97.78% yield, and 84.82% degree of hydrolysis. During fermentation, the highest nutrient contents were observed on day 9 with N, P, and K values of 2.250%, 2.072%, and 2.114%, respectively, before declining slightly thereafter. On day 15, organic carbon decreased to 33.60%, pH to 4.68, yield to 89,86%, and moisture increased to 87,72%. The N, P, and K contents of the LOF met the Indonesian Ministry of Agriculture Standard No. 261 of 2019. The pretreatment using 5% bromelain enzyme and the 9th day of fermentation were effective in producing the best quality liquid organic fertilizer (LOF), thereby indicating its potential to enhance phytoplankton population growth.

Keywords: catfish viscera, bromelain, hydrolysis, fermentation, LOF, quality