

Syifa'ah, NPM 220331100099. Formulasi Pelet Pakan Ikan Dari Limbah Organik Dan Limbah Darah RPH Dengan Penambahan Enzim. Dibawah bimbingan **Cahyo Indarto, S.TP., M.P., Ph.D** dan **Dr. Millatul Ulya, S.TP., M.T.**

ABSTRAK

Limbah organik dan limbah darah Rumah Potong Hewan (RPH) merupakan limbah yang masih belum dimanfaatkan secara optimal, padahal keduanya memiliki kandungan nutrisi yang berpotensi dimanfaatkan sebagai bahan baku pakan ikan. Pemanfaatan kedua jenis limbah tersebut dapat menjadi solusi dalam mengurangi pencemaran lingkungan sekaligus menekan biaya produksi pakan yang menjadi komponen terbesar dalam usaha budidaya ikan. Penelitian ini bertujuan untuk mengetahui pengaruh jumlah limbah organik dan penambahan enzim protease terhadap kualitas pelet pakan ikan, menganalisis interaksi kedua faktor tersebut, serta menentukan formulasi terbaik berdasarkan metode DeGarmo. Penelitian menggunakan Rancangan Acak Lengkap (RAL) faktorial dengan dua faktor, yaitu variasi limbah organik (30 g, 40 g, dan 50 g) serta penambahan enzim protease (0 g dan 1 g), masing-masing diulang sebanyak tiga kali. Parameter yang diamati meliputi kadar protein, kadar lemak, kadar air, kekerasan, daya apung, dan daya tahan dalam air. Hasil penelitian menunjukkan bahwa jumlah limbah organik memberikan pengaruh nyata terhadap kadar protein dan kekerasan pelet, sedangkan penambahan enzim protease berpengaruh nyata terhadap kadar protein, kekerasan, dan daya apung. Interaksi antara kedua faktor hanya berpengaruh nyata terhadap kadar lemak. Berdasarkan analisis DeGarmo, perlakuan L3K2 (50 gram limbah organik dan 1 gram enzim protease) merupakan formulasi terbaik dengan nilai indeks efektivitas sebesar 0,975. Formulasi tersebut menghasilkan pelet dengan kualitas nutrisi dan karakteristik fisik yang baik, sehingga berpotensi menjadi alternatif pakan ikan yang ekonomis, ramah lingkungan, dan mendukung pemanfaatan limbah secara berkelanjutan.

Kata kunci: Enzim Protease, *Limbah Darah RPH*, *Limbah Organik*, *Pelet Ikan*

ABSTRACT

Organic waste and slaughterhouse (abattoir) blood waste are underutilized waste materials, despite their nutritional potential as raw materials for fish feed. The utilization of these waste materials offers a sustainable solution to reduce environmental pollution while lowering feed production costs, which represent the largest expense in aquaculture. This study aimed to determine the effects of organic waste levels and protease enzyme supplementation on the quality of fish feed pellets, evaluate the interaction between these two factors, and identify the optimum formulation using the DeGarmo method. The experiment employed a factorial Completely Randomized Design (CRD) with two factors: organic waste levels (30 g, 40 g, and 50 g) and protease enzyme supplementation (0 g and 1 g), with each treatment replicated three times. The observed parameters included crude protein content, crude fat content, moisture content, pellet hardness, floating ability, and water stability. The results showed that the amount of organic waste significantly affected the crude protein content and pellet hardness, while protease enzyme supplementation significantly influenced the crude protein content, pellet hardness, and floating ability. The interaction between the two factors significantly affected only the crude fat content. Based on the DeGarmo analysis, treatment L3K2 (50 g of organic waste and 1 g of protease enzyme) was identified as the best formulation, with an effectiveness index of 0.975. This formulation produced fish feed pellets with favorable nutritional composition and physical characteristics, demonstrating its potential as an economical and environmentally friendly alternative feed that supports the sustainable utilization of organic waste.

Keywords: *Protease Enzyme, Slaughterhouse Blood Waste, Organic Waste, Fish Feed Pellets.*