

ABSTRAK

Industri akuakultur berkembang pesat seiring meningkatnya kebutuhan komoditas perikanan, sehingga pakan menjadi faktor krusial dalam menunjang keberhasilan budidaya. Pelet pakan ikan berbasis limbah organik dan darah Rumah Potong Hewan (RPH) diformulasikan dengan penambahan enzim protease untuk meningkatkan kualitas fisik dan kandungan nutrisi. Penelitian ini bertujuan menganalisis karakteristik fisik yaitu dimensi, densitas, porositas, dan stabilitas air serta karakteristik kimia seperti kadar protein, kadar air, dan kadar abu dari pelet berbahan limbah organik. Metode eksperimen menggunakan Rancangan Acak Lengkap (RAL) dengan tiga perlakuan formulasi limbah organik (15 g, 20 g, dan 25 g) serta tiga kali ulangan. Hasil penelitian menunjukkan bahwa formulasi dengan 25 g limbah organik menghasilkan kadar protein tertinggi ($\pm 32,5\%$), sedangkan formulasi 20 g memberikan struktur fisik lebih kompak dengan densitas $>1,2 \text{ g/cm}^3$ dan stabilitas air mencapai $>85\%$. Hasil Formulasi pada 15 g menunjukkan porositas lebih tinggi yang menurunkan ketahanan pelet. Secara keseluruhan, kombinasi limbah organik dan tepung darah menghasilkan pelet dengan kandungan protein tinggi, struktur fisik lebih kuat, serta ketahanan air lebih baik. Temuan ini menegaskan potensi limbah organik sebagai bahan baku alternatif pakan ikan yang efisien, ramah lingkungan, dan sesuai standar mutu (SNI), sekaligus mendukung prinsip keberlanjutan dalam budidaya perikanan.

Kata kunci: Densitas, Limbah, Organik, Pakan Ikan, Pelet

ABSTRACT

The aquaculture industry has rapidly developed in line with the increasing demand for fishery commodities, making feed a crucial factor in ensuring cultivation success. Fish feed pellets based on organic waste and slaughterhouse (RPH) blood were formulated with the addition of protease enzymes to improve physical quality and nutritional content. This study aimed to analyze the physical characteristics, namely dimensions, density, porosity, and water stability, as well as chemical properties such as protein, moisture, and ash content of pellets derived from organic waste. The experimental method employed a Completely Randomized Design (CRD) with three treatments of organic waste formulation (15 g, 20 g, and 25 g) and three replications. The results showed that the formulation with 25 g of organic waste produced the highest protein content ($\pm 32.5\%$), while the 20 g formulation yielded a more compact structure with density $> 1.2 \text{ g/cm}^3$ and water stability exceeding 85%. The 15 g formulation exhibited higher porosity, which reduced pellet durability. Overall, the combination of organic waste and blood meal produced pellets with high protein content, stronger physical integrity, and better water resistance. These findings emphasize the potential of organic waste as an efficient, environmentally friendly, and SNI-compliant alternative feed ingredient, while supporting sustainability in aquaculture practices.

Keyword: *Density, Organic Waste, Fish Feed, Pellets*