

Pengaruh Perbedaan Macam *Binder* terhadap Kualitas Fisik dan Kimia Pelet Berbahan Bungkil Kedelai yang Diproteksi Minyak Jagung

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INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh perbedaan macam binder terhadap kualitas fisik dan kimia pelet berbahan dasar bungkil kedelai yang diproteksi minyak jagung. Bungkil kedelai terproteksi diperoleh dari koleksi Laboratorium Teknologi Makanan Ternak. Bungkil kedelai terproteksi ditambahkan macam *binder* yang berbeda meliputi molase 8% (T1), tepung tapioka 8% (T2), dan *lignobond* 0,5% (T3). Pelet pada masing-masing perlakuan diproduksi sebanyak tiga kali sebagai ulangan. Setiap satu kali produksi menggunakan 1,2 kg bahan pakan, sehingga total bahan yang digunakan untuk setiap perlakuan adalah 3,6 kg. Setelah dicetak, pelet dikeringkan pada oven 55°C selama 24 jam. Pelet yang dihasilkan diuji laboratorium yang meliputi uji fisik dan kimia. Data hasil penelitian ini dianalisis berdasarkan Rancangan Acak Lengkap (RAL) pola searah. Pada kualitas fisik, perlakuan T1 menghasilkan ukuran pelet terpanjang, diikuti oleh perlakuan T2, dan T3 ($P=0,001$; 2,17 cm vs. 1,44 cm vs. 1,13 cm). Perlakuan T1 juga menghasilkan nilai *hardness* tertinggi, diikuti T3 dan T2 ($P=0,001$; 2,17 vs. 1.11 vs. 1.06). Perlakuan T2 dan T3 menghasilkan nilai kerapatan tumpukan yang lebih baik daripada T1 ($P=0,001$; 0,53 g/mL dan 0,52 g/mL vs. 0,40 g/mL). Perlakuan T2 dan T3 juga menghasilkan nilai kerapatan pemadatan tumpukan yang lebih baik daripada T1 ($P=0,001$; 0,55 g/mL dan 0,56 g/mL vs. 0,45 g/mL). Pada komposisi kimia menunjukkan bahwa ketiga perlakuan menghasilkan rerata bahan kering, bahan organik, protein kasar, lemak kasar dan serat kasar sebesar berturut-turut 96,8%, 91,7%, 35,9%, 21,9%, dan 3,08%. Formulasi pelet dengan berbagai macam *binder* tidak memengaruhi pada berat jenis, *modulus of uniformity*, dan *modulus of fineness*. Berdasarkan penelitian yang telah dilakukan menunjukkan bahwa *binder* molase 8% menghasilkan ukuran pelet terpanjang dan nilai *hardness* tertinggi, sedangkan tepung tapioka 8% dan *lignobond* 0,5% menghasilkan nilai kerapatan tumpukan dan kerapatan pemadatan tumpukan yang lebih baik.

Kata kunci: *binder*, bungkil kedelai terproteksi, *lignobond*, molase, pelet, tepung tapioka

The Effect of Different Types of Binders on the Physical and Chemical Quality of Soybean Meal Pellets Protected with Corn Oil

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ABSTRACT

This study aims to determine the effect of different types of binders on the physical and chemical quality of soybean meal pellets protected with corn oil. The corn oil-protected soybean meal was obtained from the Animal Feed Technology Laboratory collection. Different types of binders were added to the corn oil-protected soybean meal, including 8% molasses (T1), 8% tapioca flour (T2), and 0.5% lignobond (T3). Pellets for each treatment were produced three times as replicates. Each production run used 1.2 kg of feed ingredients, resulting in a total of 3.6 kg of ingredients used per treatment. After extrusion, the pellets were dried in an oven at 55°C for 24 hours. The resulting pellets were subjected to laboratory testing, including physical and chemical analyses. The research data were analyzed using a completely randomized design (CRD) with a one-way layout. Regarding physical quality, treatment T1 produced the longest pellet size, followed by treatments T2 and T3 ($P=0.001$; 2.17 cm vs. 1.44 cm vs. 1.13 cm). Treatment T1 also produced the highest hardness value, followed by T3 and T2 ($P=0.001$; 2.17 vs. 1.11 vs. 1.06). Treatments T2 and T3 produced better bulk density values than T1 ($P = 0.001$; 0.53 g/mL and 0.52 g/mL vs. 0.40 g/mL). Treatments T2 and T3 also produced better compacted pile density values than T1 ($P=0.001$; 0.55 g/mL and 0.56 g/mL vs. 0.45 g/mL). The chemical composition data show that the three treatments yielded average values for dry matter, organic matter, crude protein, crude fat, and crude fiber of 96.8%, 91.7%, 35.9%, 21.9%, and 3.08%, respectively. Pellet formulations using various binders did not affect bulk density, modulus of uniformity, and modulus of fineness. Based on the research conducted, it was found that an 8% molasses binder produced the longest pellet length and the highest hardness value, while 8% tapioca flour and 0.5% lignobond produced better bulk density and compacted bulk density values.

Keywords: *binder, lignobond, molasses, pellets, protected soybean meal, tapioca flour*