

## ABSTRAK

Penelitian ini bertujuan untuk melihat pengaruh suhu dan lama waktu pengeringan tepung cangkang telur ayam *hatchery* terhadap uji fisik bahan pakan berat jenis, sudut tumpukan dan luas permukaan spesifik pakan. Penelitian dilaksanakan menggunakan rancangan acak lengkap (RAL) pola faktorial 3x3 yang terdiri dari 2 faktor. Faktor A: Suhu oven (M) dengan taraf faktor M1: Suhu oven 90°C, M2: Suhu oven 105°C dan M3: Suhu oven 120°C, Faktor B: Lama waktu pengeringan (L) dengan taraf faktor L1: Lama waktu pengeringan 1 jam, L2: Lama waktu pengeringan 3 jam dan L3: Lama waktu pengeringan 5 jam. Setiap kombinasi perlakuan akan diulang sebanyak 3 kali pengulangan dan setiap kombinasi ulangan akan digunakan cangkang telur ayam *hatchery* sebanyak 500 gram. Variabel yang diukur adalah uji fisik bahan pakan berat jenis, luas permukaan spesifik dan sudut tumpukan. Data yang diperoleh dianalisis menggunakan analisis variansi dilanjutkan uji lanjut Beda Nyata Jujur (BNJ). Hasil analisis menunjukkan bahwa suhu oven berpengaruh nyata ( $P < 0,05$ ) terhadap berat jenis dan luas permukaan spesifik sedangkan berpengaruh sangat nyata ( $P < 0,01$ ) terhadap sudut tumpukan. Lama waktu pengeringan berpengaruh nyata terhadap sudut tumpukan sedangkan pada berat jenis dan luas permukaan spesifik tidak berpengaruh nyata ( $P > 0,05$ ). Interaksi perlakuan antara suhu dan lama waktu pengeringan tidak berpengaruh nyata ( $P > 0,05$ ) terhadap berat jenis, luas permukaan spesifik dan sudut tumpukan. Rataan hasil analisis untuk berat jenis yaitu  $1,236 \pm 0,021$  g/ml –  $1,387 \pm 0,040$  g/ml. Rataan hasil analisis untuk luas permukaan spesifik yaitu  $16,874 \pm 0,385$  cm<sup>2</sup>/gr -  $19,076 \pm 0,991$  cm<sup>2</sup>/gr. Rataan hasil analisis sudut tumpukan yaitu  $3,228 \pm 0,629^\circ$  -  $4,542 \pm 0,357^\circ$ . Kesimpulan bahwa pengeringan dengan suhu oven 120°C pada pembuatan tepung kerabang telur ayam *hatchery* menghasilkan berat jenis tertinggi dengan rata-rata hasil  $1,387 \pm 0,040$  g/ml, luas permukaan spesifik tertinggi dengan rata-rata hasil  $19,076 \pm 0,991$  cm<sup>2</sup>/gr dan sudut tumpukan terendah dengan rata-rata hasil  $3,228 \pm 0,629^\circ$ .

**Kata kunci:** Berat jenis, luas permukaan spesifik, pengeringan, sudut tumpukan, tepung cangkang telur ayam

## ABSTRACT

This study aims to see the effect of temperature and length of time for drying hatchery eggshell flour on the physical test of feed ingredients specific gravity, stack angle and specific surface area of feed. The research was conducted using a complete randomized design (CRD) 3x3 factorial pattern consisting of 2 factors. Factor A: Oven temperature (M) with factor levels M1: Oven temperature 90°C, M2: Oven temperature 105°C and M3: Oven temperature 120 ° C, Factor B: Drying time (L) with factor level L1: Drying time of 1 hour, L2: Duration of drying time 3 hours and L3: Drying time of 5 hours. Each treatment combination will be repeated 3 times and each combination of replicates will be used hatchery chicken eggshells as much as 500 kilograms. The measured variables are physical test of feed material specific gravity, specific surface area and stack angle. The data obtained were analyzed using analysis of variance followed by the Honest Real Difference (BNJ) further test. The analysis showed that oven temperature had a significant effect ( $P < 0.05$ ) on specific gravity and specific surface area while it had a very significant effect ( $P < 0.01$ ) on pile angle. Duration of drying time had a significant effect on the pile angle while the specific gravity and specific surface area had no significant effect ( $P > 0.05$ ). The treatment interaction between temperature and drying time had no significant effect ( $P > 0.05$ ) on specific gravity, specific surface area and pile angle. The average analysis results for specific gravity are  $1.236 \pm 0.021$  g/ml -  $1.387 \pm 0.040$  g/ml. The average analysis results for specific surface area are  $16.874 \pm 0.385$  cm<sup>2</sup>/gr -  $19.076 \pm 0.991$  cm<sup>2</sup>/gr. The average analysis results for stack angle are  $3.228 \pm 0.629^\circ$  -  $4.542 \pm 0.357^\circ$ . The conclusion is that drying with an oven temperature of 120°C in the manufacture of hatchery chicken egg shell flour produces the highest specific gravity with an average result of  $1.387 \pm 0.040$  g/ml, the highest specific surface area with an average result of  $19.076 \pm 0.991$  cm<sup>2</sup>/gr and the lowest pile angle with an average result of  $3.228 \pm 0.629^\circ$ .

**Keywords:** Chicken eggshell meal, drying, specific gravity, specific surface area, stack angle