

RINGKASAN

NALA SA'DIAH. Polimorfisme Gen *Growth Hormone* (GH) Berdasarkan Analisis *Squensing* Pada Entok (*Cairina Moschata*) Warna Bulu Putih dan Kombinasi. Penelitian dilaksanakan mulai tanggal 25 November 2016 sampai dengan tanggal 10 Maret 2017 di peternakan itik dan entok desa Dukuh Waluh, kecamatan Kembaran, kabupaten Banyumas, analisis DNA dilaksanakan di Laboratorium riset terpadu Universitas Jenderal Soedirman, dan analisis *Sequensing* menggunakan jasa PT *Genetika Science* Indonesia.

Penelitian ini bertujuan untuk mengidentifikasi urutan *nukleotida* gen *growth hormone* dan melihat adanya polimorfisme serta mengkaji keragaman genetik entok bulu putih dan bulu kombinasi berdasarkan gen *growth hormone* dengan menghitung heterozigositas. Materi yang digunakan adalah entok jantan dan betina warna bulu putih dan kombinasi umur 12 minggu sebanyak 30 ekor. Pakan entok terdiri dari campuran jagung kuning giling 30%, dedak padi 40%, dan konsentrat itik 30% dengan kandungan nutrisi pakan : PK = 18,7%, ME = 2900 kcal/kg, Calcium = 3,02% dan P = 1,06%. Bahan yang digunakan untuk pengkajian polimorfisme gen *growth hormone* yaitu dari sampel darah, RBC *lysis buffer*, etanol absolut, *wash buffer* (etanol added), *elution buffer* atau Tris EDTA, *KAPA2G Fast ReadMix*, *PCR Kit* (Kapa Biosystems), primer GH *Cairina* dengan *Forward* GH-F: 3'-CTGGGGTTGTTTAGCTTGGGA-5' dan *reverse* GH-R:5'-TAAACCTTCCCTGGCACAAC-3', *pure water*, *loading dye*, bubuk agarose DNA *ladder*, *buffer* TBE, dan pewarna DNA. Metode penelitian yang digunakan adalah metode eksperimental dengan variabel yang diukur yaitu frekuensi gen dan frekuensi genotipa yang diukur menggunakan rumus Pirchner (1981), keragaman genetik diukur dengan rumus heterozigositas berdasarkan Nei (1981).

Hasil penelitian memperlihatkan adanya perbedaan pertambahan bobot badan yaitu pada entok jantan dan betina warna bulu kombinasi masing-masing sebesar $819,6 \pm 410,11$ g dan $287,8 \pm 181,72$ g, entok warna bulu putih masing-masing $966 \pm 110,08$ g dan $375 \pm 170,46$ g. Hasil *sequencing* memperlihatkan adanya mutasi dari Adinin menjadi Cytocin pada kisaran panjang basa 139 bp. Frekuensi genotipa AA= 0,50 dan CC= 0,50, frekuensi gen A= 0,50 dan frekuensi gen C= 0,50, dengan nilai heterozigositas (h)= 0,50. Berdasarkan hasil analisis disimpulkan terdapat polimorfisme gen GH pada entok warna bulu putih dan kombinasi.

Kata kunci : Entok, Gen *Growth Hormone*, Polimorfisme.

SUMMARY

NALA SA'DIAH. *Growth Hormone* (GH) Polymorphism Gene Based On Analisis *Squensing* On Muscovy Duck (*Cairina Moschata*) White And Combination Feathers. This research was conducted from November 25, 2016 to March 10, 2017 at Duck Farm, Dukuh Waluh Village, Kembaran, Banyumas, DNA analysis was held at the Integrated Research Laboratory of General Soedirman University, and Sequencing analysis used the services of PT Genetika Science Indonesia.

This research aimed to identified the nucleotide sequence of growth hormone genes to see the polymorphism of Entok white and combination feathers and to studied the genetic diversity of white and combinations feathers based on gen growth hormone by calculated heterozygosity. Research materials were 12 weeks old male and female Muscovy duck white and combination feathers as much 30 hen. Feed was consisted of a mixture 30% milled yellow corn, 40% rice bran, and 30% concentrate with feed nutrient content: PK = 18,7%, ME = 2900 kcal / kg, Calsium = 3.02% and P = 1.06%. Materials used for assessment of growth hormone genetic polymorphisms from blood samples, RBC lysis buffer, ethanol absolute, wash buffer (ethanol added), elution buffer or Tris EDTA, KAPA2G Fast ReadMix, PCR Kit (Kapa Biosystems), primer GH *Cairina* with *forward* GH-F:3'-CTGGGGTTGTTTAGCTTGGGA-5' and *reverse* GH-R:5'-TAAACCTTCCCTGGCACAAC-3', pure water, loading dye, agarose powder, DNA ladder, TBE buffer, and DNA dye. The research method used was experimental method with measured variable that is gene frequency and genotype frequency measured using Pirchner formula (1981), genetic diversity was measured by heterozygosity formula based on Nei (1981).

The results showed that there was a difference of body weight gain on male and female feather of combination combination of $819,6 \pm 410,11$ g and $287,8 \pm 181,72$ g, white feather of $966 \pm 110,08$ g and $375 \pm 170,46$ g. The results of sequencing showed the presence of mutations from Adinine to Cytocin at a 139 bp long bases range. Frequency genotipa AA = 0,50 and CC = 0,50, gene frequency A = 0,50 and frequency of gene C = 0,50, with value of heterozygosity (h) = 0,50. Based on the analysis results concluded there is a polymorphism of growth hormone gene on Muscovy duck white and combination feathers.

Key words : Muscovy Duck, *Growth Hormone* Gene, Polymorphism.