

**ASOSIASI POLIMORFISME GEN *CHICKEN GROWTH HORMONE*
(*cGH*) TERHADAP PERTUMBUHAN AYAM HIBRIDA
(*Gallus gallus domesticus* Linnaeus, 1758)
F5 GOLDEN KAMPER**

**Nata Dwi Annisa Nizma
19/441306/BI/10298**

Dosen Pembimbing: Prof. Dr. Budi Setiadi Daryono, M.Agr.Sc.

INTISARI

Ayam kampung banyak diminati oleh masyarakat. Fakultas Biologi UGM telah melakukan *selective breeding* dengan menyilangkan Ayam Pelung (ayam kampung) dengan Ayam Layer (ayam ras) sehingga dihasilkan Ayam Golden Kamper (GK) sebagai pedaging unggul dengan karakter fenotipik mirip ayam kampung. Ayam GK sudah mencapai generasi keempat (F₄). Pertumbuhan ayam dipengaruhi oleh *growth hormone* (GH) yang dikode oleh gen *chicken growth hormone* (cGH). Penelitian ini dilakukan untuk mempelajari karakter fenotipik kualitatif dan kuantitatif, polimorfisme gen cGH intron 3 dan asosiasinya dengan pertumbuhan Ayam F₅ GK hasil persilangan sesama F₄ GK. Penelitian dilakukan pada Desember 2022 – Juli 2023 di Pusat penelitian Sawitsari Fakultas Biologi UGM, laboratorium genetika dan pemuliaan Fakultas Biologi UGM, serta LPPT UGM. Metode yang digunakan meliputi pemeliharaan ayam, pengambilan data bobot selama 7 minggu dan data morfometri pada minggu ke-7, isolasi DNA, PCR, serta *sanger sequencing*. Data yang didapatkan berupa data karakter fenotipik kualitatif, data kuantitatif (bobot dan morfometri), serta polimorfisme gen cGH. Hasil persilangan sesama Ayam F₄ GK menghasilkan 12 ekor Ayam DOC F₅ GK dengan tipe jengger tunggal (100%), warna kaki putih (100%) dan warna bulu coklat hitam (25%), blirik coklat keemasan (33,33%), serta blirik putih keemasan (41,67%). Bobot rata-rata Ayam F₅ GK umur 49 hari sebesar 400,58 gram (lebih rendah dibandingkan generasi sebelumnya dan tetuanya). Hasil analisis data menunjukkan adanya perbedaan signifikan antara Ayam F₅ GK jantan dan betina pada 10 karakter morfometri. Data molekuler menunjukkan adanya SNPs (5 titik transisi dan 1 titik transversasi). Namun analisis korelasi menunjukkan tidak adanya korelasi antara SNP dan bobot ayam.

Kata kunci: Golden Kamper, karakter fenotipik, cGH, polimorfisme

**ASSOCIATION OF CHICKEN GROWTH HORMONE (*cGH*) GENE
POLYMORPHISM WITH THE GROWTH OF
F₅ GOLDEN KAMPER HYBRID CHICKEN
(*Gallus gallus domesticus* Linnaeus, 1758)**

**Nata Dwi Annisa Nizma
19/441306/BI/10298**

Supervisor: Prof. Dr. Budi Setiadi Daryono, M.Agr.Sc.

ABSTRACT

The indigenous chickens of Indonesia have gained significant popularity among the community. The Faculty of Biology at Universitas Gadjah Mada (UGM) has engaged in selective breeding by crossing the Pelung Chicken (local chicken) with the Layer Chicken (breed chicken), resulting in the production of the Golden Kamper (GK) Chicken, distinguished for its superior meat qualities and phenotypic resemblance to local chickens. The GK chickens have reached the fourth generation (F₄). The growth of these chickens is influenced by the growth hormone (*GH*), which is encoded by the chicken growth hormone gene (*cGH*). This research aims to study the qualitative and quantitative phenotypic characteristics, the polymorphism of the *cGH* gene in intron 3, and its association with the growth of F₅ GK Chickens resulting from the mating of F₄ GK chickens. The study was conducted from December 2022 to July 2023 at the Sawitsari Research Center of the Faculty of Biology UGM, genetics and breeding laboratory of the Faculty of Biology UGM, and LPPT UGM. The methods employed encompassed chicken husbandry, data collection of weights over 7 weeks and morphometric data in the 7th week, DNA isolation, PCR, and Sanger sequencing. The collected data included qualitative phenotypic data, quantitative data (weights and morphometrics), and *cGH* gene polymorphism. Intraspecific mating of F₄ GK Chickens yielded 12 F₅ GK chicks with single comb type (100%), white leg color (100%), and feather colors of black-brown (25%), golden-brown (33.33%), and white-golden (41.67%). The average weight of F₅ GK chickens at 49 days old was 400.58 grams (lower compared to the previous generation and its ancestors). The results of data analysis indicated significant differences between male and female F₅ GK Chickens in 10 morphometric traits. Molecular data revealed the presence of SNPs (5 transition points and 1 transversion point). However, correlation analysis demonstrated the absence of a correlation between SNPs and chicken weight.

Keywords: Golden Kamper, phenotypic character, *cGH*, polymorphism