

# EFEKTIVITAS *IMMUNOMODULATOR FEED* DALAM MENINGKATKAN KINERJA

## ORGAN DAN SISTEM KEKEBALAN TUBUH PADA AYAM LOKAL

### INTISARI

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AGUS DARMANTO. "Kajian Efektivitas *Immunomodulator Feed* dalam Meningkatkan Kinerja Organ dan Sistem Kekebalan Tubuh Ayam Lokal". Penelitian ini bertujuan untuk mengetahui interaksi antara galur dan jenis *immunomodulator feed*, pengaruh galur, dan efektivitas berbagai *immunomodulator feed* terhadap kinerja organ dan sistem kekebalan tubuh ayam lokal. Ternak yang digunakan dalam penelitian ini adalah ayam Kampung (A1), ayam Kampung Unggul Balitnak (A2), dan ayam Kedu (A3) berumur 28 hari masing-masing sebanyak 160 ekor sehingga total 480 ekor. Pakan yang digunakan adalah pakan basal dengan penambahan *immunomodulator feed* (kontrol (B1), sambiloto 1% (B2), tepung bawang putih 1% (B3), dan kalimun 1% (B4)). Kandang yang digunakan dalam penelitian adalah kandang koloni lantai litter ukuran 100 x 80 cm sebanyak 48 unit percobaan. Penelitian dilaksanakan menggunakan metode experimental dengan Rancangan Acak Lengkap (RAL) Pola Faktorial (faktor A galur ayam dan faktor B *immunomodulator feed*) terdiri dari 12 perlakuan 4 kali ulangan dan setiap unit terdapat 10 ekor ayam lokal. Perlakuan yang diuji adalah berbagai galur ayam lokal dengan pemberian *immunomodulator feed* yaitu A1B1, A1B2, A1B3, A1B4, A2B1, A2B2, A2B3, A2B4, A3B1, A3B2, A3B3, dan A3B4. Data kuantitatif dianalisis menggunakan uji analisis sidik ragam (ANAVA), kemudian dilanjutkan dengan Uji Lanjut Beda Nyata Jujur (BNJ) menggunakan program *spss 25*. Hasil analisis variansi menunjukkan bahwa interaksi antara galur ayam lokal dengan berbagai *immunomodulator feed* dan penambahan *immunomodulator feed* 1% berbeda tidak nyata ( $P > 0,05$ ) terhadap kinerja organ limfoid (hati, limfa, *tymus*, dan *bursa fabrisius*), leukosit, diferensial leukosit, dan infiltrasi limfosit dan makrofag di lamina propia ileum ayam. Galur ayam berpengaruh nyata ( $P < 0,05$ ) terhadap kinerja organ (*tymus* dan *bursa fabrisius*) serta infiltrasi limfosit di lamina propia ileum ayam. Hasil uji lanjut Beda Nyata Jujur (BNJ) menunjukkan bahwa rata-rata persentase bobot *tymus* paling tinggi pada ayam Kampung Unggul Balitnak sebesar  $0,342 \pm 0,175\%$ , ayam Kedu  $0,218 \pm 0,102\%$ , dan paling rendah ayam Kampung  $0,217 \pm 0,119\%$ . Rata-rata persentase bobot *bursa fabrisius* paling tinggi pada ayam Kampung sebesar  $0,195 \pm 0,115\%$ , ayam Kampung Unggul Balitnak  $0,171 \pm 0,115\%$ , dan paling rendah ayam Kedu  $0,087 \pm 0,09\%$ . Rata-rata persentase jumlah limfosit di lamina propia ileum ayam paling tinggi pada ayam Kampung Unggul Balitnak  $2,89 \pm 0,61\%$ , ayam Kedu  $1,92 \pm 0,42\%$ , dan paling rendah ayam Kampung  $1,89 \pm 0,42\%$ . Kesimpulan dari penelitian ini adalah interaksi antara galur ayam lokal dengan berbagai *immunomodulator feed* dan penambahan berbagai *immunomodulator feed* 1% belum efektif dalam meningkatkan kinerja organ limfoid, total leukosit dan diferensial leukosit, serta infiltrasi limfosit dan makrofag di lamina propia ileum ayam. Galur ayam Kampung Unggul Balitnak mempunyai kinerja organ kekebalan tubuh (*tymus* dan *bursa fabrisius*) paling baik dan jumlah infiltrasi limfosit di lamina propial ileum ayam lokal paling tinggi dibandingkan dengan ayam Kampung dan ayam Kedu.

Kata Kunci: Ayam Lokal, *Immunomodulator feed*, Sistem Kekebalan Tubuh

# FEED IMMUNOMODULATOR EFFECTIVENESS IN INCREASING PERFORMANCE OF ORGANS AND IMMUNE SYSTEM ON LOCAL CHICKEN

## ABSTRAK

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AGUS DARMANTO. "Study of Feed Immunomodulators Effectiveness in Improving Performance of Organs and Immune Systems on Local Chicken". This study aims to determine the interaction between strains and types of immunomodulator feeds, the effect of genetics, and the effectiveness of various immunomodulator feeds on the performance of organs and the immune system on local chickens. The livestock used in this study were Kampung chickens (A1), KUB chickens (A2), and Kedu chickens (A3) aged 28 days were 160 each for a total of 480 chickens. The feed used was basal feed with the addition of immunomodulator feed (control (B1), 1% sambiloto (B2), 1% garlic (B3), and 1% kalimun (B4)). The cage used in this study was a colony cage with a litter floor size of 100 x 80 cm with 48 experimental units. The study was carried out using an experimental method with a completely randomized design (CRD) with a factorial pattern (factor A chicken strain and factor B immunomodulator feed) consisting of 12 treatments repeated 4 times and each unit contained 10 local chickens. The treatments tested were various local chicken breeds with immunomodulator feed, namely A1B1, A1B2, A1B3, A1B4, A2B1, A2B2, A2B3, A2B3, A2B4, A3B1, A3B2, A3B3, and A3B4. Quantitative data were analyzed using the analysis of variance test (ANOVA), then continued with the Advanced Test of Honest Significant Difference (HSD) using the SPSS 25 program. The results of the analysis of variance showed that the interaction between local chicken strains with various immunomodulator feeds and the addition of immunomodulator feeds had no significant effect ( $P > 0.05$ ) on the performance of lymphoid organs (liver, spleen, thymus, and bursa fabrisius), leukocytes, differential leukocytes, and infiltration lymphocytes and macrophages in the lamina propria ileum of the chicken. Chicken strain had a significant effect ( $P < 0.05$ ) on organ performance (tymus and bursa fabrisius) and lymphocyte infiltration in the lamina propria ileum of the chicken. The results of the further test of Honest Significant Difference (HSD) showed that the highest average thymus weight percentage was in Kampung Unggul Balitnak chickens of  $0,342 \pm 0,175\%$ , Kedu chickens of  $0,218 \pm 0,102\%$ , and the lowest was Kampung chickens of  $0,217 \pm 0,119\%$ . The highest average percentage of *bursa fabrisius* weight was in Kampung chickens at  $0,195 \pm 0,115\%$ , Kampung Unggul Balitnak chickens at  $0,171 \pm 0,115\%$ , and the lowest was Kedu chickens at  $0,087 \pm 0,09\%$ . The average percentage of lymphocyte counts in lamina propria ileum the chicken was the highest in Kampung Unggul Balitnak chickens  $2,89 \pm 0,61\%$ , Kedu chickens  $1,92 \pm 0,42\%$ , and the lowest was  $1,89 \pm 0,42\%$  in Kampung chickens. The conclusion of this study is that the interaction between local chicken breeds with various immunomodulatory feeds and the addition of 1% immunomodulatory feed has not been effective in increasing on the performance of lymphoid organs, leukocyte and leukocyte differential, as well as lymphocyte and macrophage infiltration in the lamina propia ileum of the chicken. Kampung Unggul Balitnak strain has the best performance of immune organs (tymus and bursa fabrisius) and the highest number of lymphocyte infiltration in the lamina propial ileum of local chickens compared to Kampung chickens and Kedu chickens.

Keywords: Local Chicken, Immunomodulator feed, Immune System