

## INTISARI

### EFEK SUPLEMENTASI KOMBINASI HERBAL DAN PROBIOTIK TERHADAP TITER ANTIBODI *NEWCASTLE DISEASE* (ND) PADA AYAM PETELUR PERIODE PRODUKSI

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Penggunaan *Antibiotic growth promoters* (AGP) dalam pakan ternak yang bertujuan untuk pemacu pertumbuhan dan meningkatkan produktivitas ternak telah dilarang sejak 2017. Pelarangan ini diduga AGP memiliki kontribusi yang tinggi terhadap terjadinya resistensi antibiotik pada ternak maupun manusia. Sejak itu banyak dicari alternatif untuk mencari pengganti AGP seperti pemanfaatan herbal dan probiotik atau kombinasi keduanya. Tujuan dari penelitian ini untuk mengetahui efek pemberian imbuhan pakan kombinasi herbal dan probiotik terhadap titer antibodi *Newcastle Disease* (ND) yang merupakan penyakit paling sering muncul. Sebanyak 40 ekor ayam dibagi secara acak ke dalam dua kelompok, yaitu kelompok kontrol yang hanya diberi pakan standar dan kelompok perlakuan yang diberi pakan dengan imbuhan berupa *Zingiber officinale var. rubrum* (jahe merah), *Curcuma zanthorrhiza* (temulawak), *Bacillus subtilis*, dan *Lactobacillus acidophilus*. Titer antibodi terhadap *Newcastle Disease* diukur menggunakan uji hemaglutinasi inhibisi (HI) pada tiga titik waktu: sebelum vaksinasi (umur 16 minggu), dua minggu pascavaksinasi (umur 19 minggu), dan enam minggu pascavaksinasi (umur 23 minggu). Hasil menunjukkan bahwa sebelum vaksinasi, kelompok perlakuan memiliki titer antibodi rata-rata lebih tinggi (rata-rata  $\log_2$  5,75; GMT 54,78) dibandingkan kontrol (rata-rata  $\log_2$  4,5; GMT 22,63). Dua minggu setelah vaksinasi, kelompok kontrol menunjukkan titer antibodi yang lebih tinggi (rata-rata  $\log_2$  9,4; GMT 667,95) dibandingkan perlakuan (rata-rata  $\log_2$  9; GMT 512). Enam minggu pascavaksinasi, kelompok kontrol tetap menunjukkan titer antibodi yang lebih tinggi (rata-rata  $\log_2$  11; GMT 2048) dibandingkan perlakuan (rata-rata  $\log_2$  10,75; GMT 1747,53). Analisis statistik menggunakan uji Mann-Whitney dan Independent T-Test menunjukkan bahwa perbedaan antar kelompok tidak signifikan secara statistik ( $P > 0,05$ ). Kesimpulan dari penelitian ini adalah penambahan herbal dan probiotik mempunyai pengaruh terhadap titer antibodi tetapi tidak konsisten dan tidak signifikan.

Kata kunci: *Newcastle Disease*, ayam petelur, titer antibodi, suplemen herbal, probiotik, hemaglutinasi inhibisi.

## ***ABSTRACT***

### **THE EFFECT OF COMBINED HERBAL SUPPLEMENTATION AND PROBIOTICS ON *NEWCASTLE DISEASE* (ND) ANTIBODY TITERS IN LAYING HENS DURING THE PRODUCTION PERIOD**

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The use of Antibiotic growth promoters (AGP) in animal feed, which aims to stimulate growth and increase livestock productivity, has been banned since 2017. This ban is suspected of AGP having a high contribution to the emergence of antibiotic resistance in livestock and humans. Since then, many alternatives have been sought to find AGP substitutes such as the use of herbs and probiotics or a combination of both. The purpose of this study was to determine the effect of providing a combination of herbal and probiotic feed additives on the antibody titer of Newcastle Disease (ND), which is the most frequently occurring disease. A total of 40 chickens were randomly divided into two groups, namely the control group that was only given standard feed and the treatment group that was given feed with additives in the form of *Zingiber officinale* var. *rubrum* (red ginger), *Curcuma zanthorrhiza* (curcuma), *Bacillus subtilis*, and *Lactobacillus acidophilus*. Newcastle Disease, layer chickens, antibody titer, herbal supplement, probiotic, hemagglutination inhibition. Antibody titers against Newcastle Disease were measured using the hemagglutination inhibition (HI) assay at three time points: before vaccination (16 weeks of age), two weeks post-vaccination (19 weeks of age), and six weeks post-vaccination (23 weeks of age). Results showed that before vaccination, the treatment group had a higher mean antibody titer (mean  $\log_2$  5.75; GMT 54.78) than the control (mean  $\log_2$  4.5; GMT 22.63). Two weeks after vaccination, the control group showed a higher antibody titer (mean  $\log_2$  9.4; GMT 667.95) than the treatment (mean  $\log_2$  9; GMT 512). Six weeks post-vaccination, the control group still showed higher antibody titers (mean  $\log_2$  11; GMT 2048) compared to the treatment group (mean  $\log_2$  10.75; GMT 1747.53). Statistical analysis using the Mann-Whitney test and the Independent T-Test showed that the difference between groups was not statistically significant ( $P > 0.05$ ). The conclusion of this study is that the addition of herbs and probiotics has an effect on antibody titers but is inconsistent and not significant.

Keywords: Newcastle Disease, laying hens, antibody titer, herbal supplements, probiotics, hemagglutination inhibition.