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Developing A herbal alternative to solve the problem of antimicrobial resistance in broilers production

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Abstract

The ban on use of antibiotics as a common poultry health control measure, due to its end implication on the users, is a call for replacement in poultry production. This study was conducted to see the effect of replacing synthetic antibiotics with herbal one in broiler production during the dry and wet seasons. A total of ninety-six, 21 day-old Abor Acres broilers were randomly allotted to four groups, four replicates and 6 birds per replicate in a completely randomised design. Group 1 (G1) was the positive control group not infected with a culture of *Pseudomonas aeruginosa* (PA) and no antibiotics, group 2 (G2) was the group with oral administration of PA and treatment with synthetic antibiotic, group 3 (G3) was group infected with PA and 10ml of herbal antibiotics per litre of water, group 4 (G4) was the group infected with PA plus 20 ml/litre of herbal antibiotics. The experiment lasted for 5 weeks while data on performance, haematology and serum parameters were taken and subjected to one way analysis of variance (ANOVA). Air temperature and relative humidity data were collected via Govee Bluetooth Hygrometer Thermometer and processed using Microsoft 365 Excel. Significant differences ($p < 0.05$) were observed in the performance parameters evaluated with G1 having the lowest final body weight (1692.63g) while the highest final body weight was obtained from birds in group 4 (1977.44g). Body weight change followed the same pattern as in final weight as we had the highest weight change in group 4 (1731.19g) while the lowest was found in group 1 (1448.99g). Significant decrease ($p < 0.05$) were also recorded in feed intake across the group with G1 having the highest feed intake (2259.84g) while the lowest feed intake (2165.39g) was recorded in group G3. Serum biochemical parameters showed no significant difference ($p > 0.05$) in this study, but a numerically high serum protein (4.60%) was recorded in G4. It can be concluded from this study that herbal antibiotics administered at the level of 20ml per litre gave the best results in terms of performance, therefore can perfectly replace synthetic antibiotics in broilers production.

Keywords: Antibiotics, antimicrobial resistance, broilers, humidity, temperature