

The effect of dietary sodium bicarbonate on performance and blood parameters of broiler chickens and local Balady breed inoculated with *Salmonella gallinarum**

H.A. Zakaria^{1,3}, M.J. Tabbaa¹, K.M. Alshawabkeh¹ and K. Altaif²

¹The University of Jordan, Department of Animal Production, Faculty of Agriculture
Amman -11942, Jordan

²Al Hussein Bin Talal University, Department of Biology, Faculty of Sciences
P.O.Box (20), Amman -11821, Jordan

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ABSTRACT

To determine the role of 0.5% sodium bicarbonate (NaHCO_3) on the performance of chickens inoculated with *Salmonella gallinarum*, a total of 720 one-day-old-broiler chicks from four strains Hubbard (H), Lohmann (L), Ross (R) and Balady (B) were grown for 42 days in 24 pens, two levels of NaHCO_3 (0 and 0.5%) and 3 replicates/treatment (4 strains \times 2 dietary treatment \times 3 replicates of 30 birds for each group) in a completely randomized design. Dietary NaHCO_3 supplementation had significant adverse effects on average body weight ($P<0.001$), feed intake and feed conversion ratio (FCR). Body weight of the four non-treated groups was significantly higher than treated ($P<0.001$) and B strain birds had the lightest final body weight and the poorest FCR and was significantly different from the 3 commercial strains ($P<0.05$). Blood glucose, cholesterol, and total protein were not affected by dietary alterations or strain differences. The re-isolation of *Salmonella gallinarum* from liver and intestine of sacrificed and inoculated chickens revealed that the organism could be shed from liver and intestine with alternative rates in all strains. There was a significantly higher mortality rate in treated groups ($P<0.05$) during the whole experimental period. Furthermore, B strain was numerically the most resistant to *Salmonella gallinarum* of the untreated groups. The use of 0.5% dietary NaHCO_3 did not improve the performance of the different strains nor prevent the localization of *Salomonella gallinarum*.

KEY WORDS: *Salmonella gallinarum*, Balady, sodium bicarbonate, growth performance, chickens

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³ Corresponding author: e-mail: zakariah@ju.edu.jo