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Effect of Stocking Density and Dietary Incorporation of Sidr (*Ziziphus spina-christi* L.) Fruits on Broiler Performance under Arid Hot Climate

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Abstract

A (2×3) factorial experiment in a completely randomised design was conducted to investigate the effect of dietary inclusion of different levels of Sidr (0, 3 and 5 %) on broilers raised in stocking densities of 10 and 12 birds m^2 . A total number of 198 Ross 308 broiler chicks were reared up to 42 day of age. Sorghum and groundnut basal starter and finisher diets were incorporated with 0, 3 and 5 % Sidr and provided to the birds *ad libitum*. The group contained 10 birds without dietary inclusion of Sidr was considered as control treatment. The experimental diets were formulated iso-nitrogenous and iso-energetic to meet or exceed the requirements of broilers (NRC, 1994). Feed consumption (FC), weight gain (WG) and feed conversion ratio (FCR) were recorded. At day 42, two birds from each experimental unit were selected according to their closed weights to the average weight of the same pen and slaughtered. Weights of live body, carcass, some internal organs and cuts were measured. The results showed that Sidr fruits contained 3.92 % protein, 0.95 % fat, 3.81 % ash, 5.71 % fibre and 13.96 MJ kg^{-1} metabolisable energy. During starter, finisher and entire experimental period, FC, WG and FCR were not affected by experimental treatments ($p \geq 0.05$). No interaction effects were observed between stocking density and dietary inclusion of Sidr fruits in all investigated parameters. The only exception was recorded with FCR for the entire experimental period ($p \leq 0.01$). The best weights of live body and carcass were recorded with birds fed on 3 % Sidr fruits ($p \leq 0.01$). However, all internal organs and cuts were not influenced by different treatments. The current study indicated that, broilers could be reared in 12 birds m^2 stocking density in open sided houses without negative impact on performance. Sidr fruits could be included in broiler diets by 3 % for better weights of live body and carcass.

Keywords: Broiler performance, stocking density, *Ziziphus spina-christi*