Effect of water electrolyte supplementation on performance, serum and haematological indices of broiler chickens under heat-stressed conditions

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Abstract
In a study to assess the effect of electrolyte supplementation on performance of broiler chicken, 192 day-old Abor Acre broiler chicks were randomly allotted to 4 treatments: T1 – un-supplemented water, T2 - 0.5% NaCl, T3 - 0.5% KCl and T4 - 0.5% NaHCO3, with 6 replicates each in a completely randomized design. Initial weight, final weight, weight gain, feed intake were recorded and feed conversion computed. Mortality was recorded when observed. Ambient temperature and relative humidity were monitored daily. At the end of day 28, rectal temperature of each bird was recorded weekly for 3 weeks using a digital thermometer. At day 42, blood (5mls) was collected for haematological indices and plasma separated for the determination of Cl, Na, K, Ca, P, Mg, HCO3. Data obtained were analyzed and means separation determined by least significant differences ($p<0.05$) using the SAS Institute statistical software. Under heat stress, 0.5% KCl and 0.5%NaCl supplementation in water reduced rectal temperature, increased body weight, improved FCR, and reduced blood pH. Electrolyte supplementation also influenced red blood cell count as well as serum levels of sodium, potassium and bicarbonate. Supplementing KCl and NaCl in drinking water may be a means to improve productivity of broiler under high temperature and humidity conditions.

Keyword: Electrolytes, broiler chicken, performance, heat stress

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Target audience: Farmers, Researchers and Policy makers