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Influence of water salinity levels on growth performance, sensory evaluation, and meat quality attributes of broiler chicken

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Abstract

This study aimed to determine the effect of saline water on feed and water intake, growth performance, broiler meat quality, and consumer sensory characteristics of birds subjected to varying water salinity levels. Four hundred and ninety-one-day-old commercial Ross unsexed broiler chicks (40.90 ± 0.21 grams) were randomly assigned into seven treatments. Each treatment was replicated seven times, using a one-way factorial design for 42 days. The varying levels of saline water: 0, 0.5, 1, 1.5, 2, 2.5, and 3 g salt/L, which the birds were subjected to, formed the treatment for this experiment. The average daily water intake (ADWI), average daily feed intake (ADFI), water-to-feed ratio (W.F.R.), average daily gain (A.D.G.), and feed conversion ratio (F.C.R.) were estimated weekly, post-mortem pH at 24 h, meat color, and sensory evaluation were determined from the breast muscle of each bird. Water salinity affected the ADWI and ADFI ($P<0.01$). The F.C.R. was only affected by weeks of successive feeding ($P<0.01$). The interaction between water salinity × weeks of successive feeding affected the A.D.G. ($P<0.01$). There was no significant difference ($P>0.05$) among the meat pH and color treatment means. The differences were only observed in consumer sensory evaluation, but no difference ($P>0.05$) was observed in meat taste, Texture, aroma, and toughness.
It can be concluded that alternative water sources with salt levels up to 2g/L can be used to raise broilers since they do not affect growth, consumers' meat characteristics, or sensory evaluation.

Keywords: Water resources, broiler chickens, meat quality, consumer evaluation

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