

# THE EFFECT OF THERMAL CONDITIONING ON PERFORMANCE, THERMOTOLERANCE, AND MEAT QUALITY OF BROILERS

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The present study evaluated the effect of thermal conditioning on performance, thermotolerance, and meat quality in broilers. Broiler chicks (Cobb 500) were randomly assigned into four treatments in a CRD with three replicates. Chicks (n=24 per treatment) were subjected to 24 h of thermal conditioning in temperature chambers at  $36\pm 0.5^{\circ}\text{C}$  on day 3 (T1), day 5 (T2), and day 7 (T3). Twenty-four chicks were unconditioned (C) and all the birds were managed similarly. The temperature humidity index (THI) was calculated to assess the potential heat stress. The body weight gain (BWG), feed intake (FI), feed conversion ratio (FCR), water intake (WI), and rectal temperature (RT) were measured while panting behaviour (PB) was observed. On day 35, the blood glucose level (BGL) of birds was measured and they were slaughtered. Carcass yield parameters (n=12); dressing percentage, individual cut, and organ weight percentages, and meat quality parameters (n=9); pH, colour, water-holding capacity, and cooking loss were measured. Parametric and non-parametric data were analysed using the ANOVA and the Kruskal-Wallis rank sum test, respectively. The THI values varied between 27.06-31.23 throughout the rearing period. The BWG and FCR were not significantly different ( $p>0.05$ ) among the treatments. However, T1 reported significantly lower ( $p<0.05$ ) FI in the finisher feeding period. The PB and RT were not significantly different ( $p>0.05$ ) among the treatments. However, significantly lower ( $p<0.05$ ) WI and higher ( $p<0.05$ ) BGL were reported in T1. The carcass characteristics have not differed significantly ( $p>0.05$ ) except for the breast meat percentage in T3. The C reported a significantly higher water-holding capacity and lower cooking loss than other treatments. However, meat pH and colour have not significantly differed ( $p>0.05$ ) among the treatments. In conclusion, thermal conditioning at  $36\pm 0.5^{\circ}\text{C}$  for 24 h did not cause any significant change in the performance, thermotolerance, and meat quality of broilers.

**Keywords:** Heat stress, Panting, Temperature humidity index