

## Coping Heat Stress By Crushed Fennel (*Foeniculum Vulgare*) Seeds in Broilers: Growth, Redox Balance, and Humoral Immune Response

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**Abstract :** The goal of this study was to determine how fennel seed supplementation affected broiler growth, carcass quality, antioxidant status, and antibody titer in heat-stressed broilers. A total of 720 one-day-old broiler chickens were weighed and assigned to 28-floor pens (25 broiler chickens per pen). The broiler chickens were housed in a thermoneutral (TN) environment and were exposed to heat stress (HS). For 23 hours, the broiler chickens were kept under fluorescent lighting. For 35d, HS broiler chickens were fed a control diet and three levels of fennel seeds powder at rates of 15g/kg (Fen-15), 20 g/kg (Fen-20), and 25 g/kg (Fen-25). Overall feed intake, weight gain, and dressing % were considerably greater ( $P < 0.05$ ) in Fen-25 and TN, but FCR was significantly reduced ( $P < 0.01$ ) in the same groups. When TN, Fen-20, and Fen-25 were compared to the control, malondialdehyde (MDA), paraoxonase (PON1), and antibody titer against New Castle disease (ND) were considerably ( $P < 0.05$ ) greater. Further, the linear and quadratic response was for feed intake, weight gain, FCR, MDA, PON1, and ND titer. It was concluded that Fen-20 and Fen-25 increased broiler growth, carcass quality, antioxidant status, and immunological response under HS conditions.

**Keywords :** heat stress, growth, antioxidant, immunity

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