

**THE EVALUATION OF STRESS MARKERS IN THE HEMATOLOGICAL
PROFILE OF QUAIL FED WITH OKRA WASTE FLOUR AS A SOURCE
OF NATURAL ANTIOXIDANTS IN THE FEED**

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ABSTRACT

Indonesia's tropical climate results in relatively high environmental temperatures, which can increase stress levels in quails. One effort to prevent oxidative stress is through the supplementation of natural antioxidants. Okra waste, which contains natural antioxidant compounds, can be used as a feed additive due to its beneficial properties. One of the key compounds found in okra waste flour is flavonoid, which functions as an anti-stress agent under heat stress conditions. This study aimed to determine the correlation between the addition of okra waste flour as a source of natural antioxidants and stress levels in quails. The study employed a Completely Randomized Design (CRD) with a factorial pattern and Analysis of Variance (ANOVA). Significant results were further tested using Duncan's Multiple Range Test (DMRT). A total of 192 Day Old Quails (DOQ) were used, divided into two temperature factors room temperature (28°C) and heat stress temperature (31°C) and four treatment levels: P0 (control), P1 (1% okra waste), P2 (2% okra waste), and P3 (3% okra waste), with three replications per treatment and eight quails per replication. Okra waste flour was administered starting at 14 days of age. Hematological parameters observed included erythrocytes, hematocrit, leukocytes, heterophils, lymphocytes, and the heterophil-to-lymphocyte (H/L) ratio. The results showed that the addition of okra waste flour significantly affected erythrocyte and hematocrit values ($P < 0.05$), while leukocytes, heterophils, lymphocytes, and the H/L ratio were not significantly different ($P > 0.05$). The interaction between temperature and dietary treatment also showed no significant effect on any parameter ($P > 0.05$). In conclusion, supplementation of okra waste flour up to 3% under heat stress conditions (31°C) did not significantly affect the hematological profile of quails.

Keyword: Quail, Okra, Antioxidants, stress, Hematology.