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**Efficacy of *Cannabis sativa* Linn for Promoting Flock Health and Productive Performance in Thai Native Chickens**

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**Abstract:**

**Background/Objective:** For food sustainability, the production of Thai native chicken is essential. Unfortunately, the meat productivity and quality are limited. Therefore, the use of natural products to promote flock health and improve productive performance is an attractive alternative management approach, utilizing the one-health concept. The study investigated the effects of Cannabis sativa Linn on the growth performance, blood biochemistry, meat quality, and related gene expression of Thai native chickens.

**Methods:** Chemical composition and antioxidant markers of marijuana powder were measured. For a completely randomized design, four hundred chickens were divided into four groups with 0 (control diet), 1, 2, and 4 g of marijuana powder/kg of feed, respectively. The chickens were evaluated for growth performance, while the carcasses were evaluated for meat quality and sensation. The immune gene expression from hepatic tissue was evaluated by real-time polymerase chain reaction. The data were subjected to analysis of variance, followed by the comparison of Least Square Means using Tukey’s test or Kruskal–Wallis H test.

**Results:**

Proximate composition and antioxidant capacity of marijuana powder revealed favorable characteristics with high phenolic content, delta-9-tetrahydrocannabinol and cannabidiol. Improvement of average daily gain and feed intake in supplemented groups was observed (*p*< 0.05). Moreover, the meat protein, fat, moisture, and color in the supplemented group were more improved than those of the control group (*p*<0.05). The sensory tenderness of the meat was also increased compared to that of the control group (*p*<0.05). The upregulation trend of immune-related genes occurred in their liver tissues. Furthermore, the blood biochemical parameters and the organ weights may suggest a agreeable safety profile of marijuana supplementation.

**Conclusion:** These findings highlight the potential of marijuana as a feed additive to enhance the meat quality and productivity of Thai native broiler chickens. Further research is warranted to explore the optimal dosage of marijuana powder supplementation for the chicken in farming practices.

**Keywords:** cannabis; growth performance; immunostimulant; meat quality; native chicken