



Haematological Indices of Broiler Chickens Fed Different Levels of Hog Plum (*Spondias mombin*)

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INTRODUCTION

The poultry industry is a significant contributor to the global food supply, with broiler chickens being one of the most widely consumed sources of animal protein (Mottet & Tempio, 2017). As the demand for poultry products continues to rise, there is an increasing need for efficient and sustainable broiler production systems that can meet the growing demand while maintaining high standards of animal welfare and environmental sustainability.

Traditionally, broiler diets have relied heavily on conventional feed ingredients, such as corn, soy bean meal, and synthetic additives (Afolayan *et al.*, 2022). However, there has been a growing interest in exploring alternative and more sustainable feed sources, particularly those derived from plant-based materials with potential health-promoting properties (Azizpour & Saki, 2021).

MATERIALS AND METHODS

Experimental Site

The experiment was conducted at the Training and Research Unit of the Agricultural Technology Department, The Federal Polytechnic, Ilaro. It is located in Yewa South Local Government area of Ogun State, Nigeria. It has coordinates of Latitudes 6°37'46"N and 6°55'42"N and Longitudes 2°47'24"E and 3°6'48"E (Weather Spark, 2017). **Processing of Experimental Materials**

Fresh hog plum leaves (*Spondias mombin*) were harvested from the Ilaro community, dried under room temperature, and then ground into powder using a blender and stored in an airtight container.

The experiment involved four dietary treatments formulated with varying inclusion levels of *Spondias mombin* leaf meal into commercial broiler finisher feed. The diets were designated as follows:

- **T1:** 50 mg of hog plum powder / 25 kg of feed. **T2:** 75mg of hog plum powder / 25 kg of feed.
- **T3:** 100mg of hog plum powder /25kg of feed, **T4:** 0mg of hog plum powder/ 25kg of feed (control)

Each treatment was carefully mixed to ensure homogeneity, and the feed was offered to the broilers throughout the experimental period.

RESULTS AND DISCUSSION

Table 1 summarizes the key hematological parameters observed across different treatment groups. There was a significant difference ($P < 0.05$) in RBC, lymphocytes and heterophils between the treatments only. While other parameters measured showed no significant ($p > 0.05$) differences. Birds fed T4 recorded significantly ($p < 0.05$) lowest values of RBC and Lymphocytes compared to T1 and T3 which had significantly highest value of RBC and Lymphocyte. However, birds fed T4 recorded significantly ($p < 0.05$) highest value of heterophils than birds fed T1 and T3. The study of the hematological parameters of broiler finishers fed varying levels of *Spondias mombin* provides valuable insights into the nutritional implications and health status of poultry. The results from this study shows that hog plum has a positive influence on the RBC and lymphocytes when compared to the control. The RBC showed a significant ($p < 0.05$) increase in values across all treatments compared to the control (T4) which contrasts with the findings of Okonkwo *et al.*, (2018), in which the values decreased with each level of hog plum (*Spondias mombin*) inclusion. The RBC of all treatments fell within the ideal range of 2.5-3.5 $\times 10^6$ (Bounous & Stedman, 2000). The heterophils were statistically significant ($p < 0.05$). At T4, the heterophil level was significantly higher compared to the other treatments.

CONCLUSION

The incorporation of hog plum (*Spondias mombin*) into broiler chicken diets in this study did not negatively affect haematological indices. The nutritional benefits found in hog plum leaves could play a major role in sustainable poultry production while promoting animal health in resource-constrained countries.