

**GROWTH PERFORMANCE, GUT INTEGRITY AND BLOOD METABOLITES OF LAYING HENS FED PEPPER ELDER (*Peperomia pellucida* (L.) Kunth) SUPPLEMENTED DIETS**

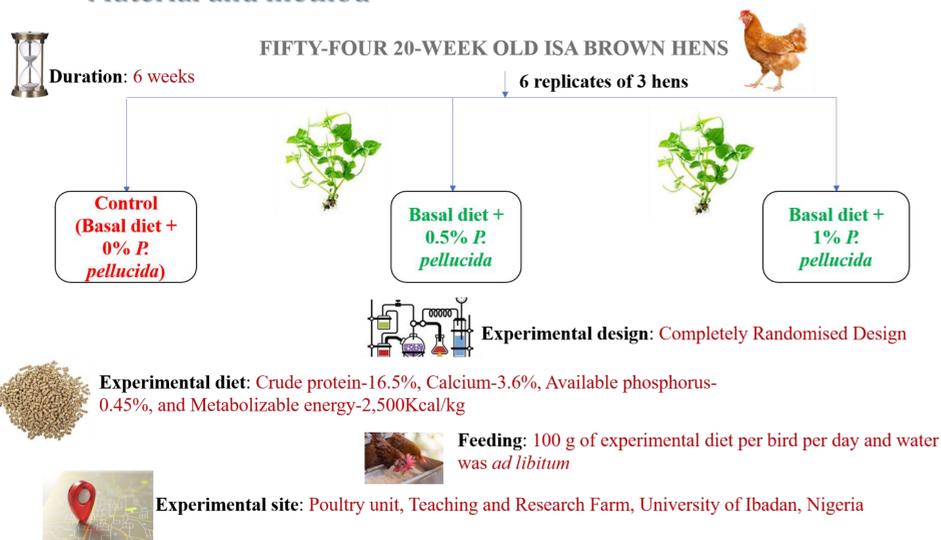
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**Abstract:** The threat posed by the continuous application of antibiotics as growth promoters to poultry and humans who consume the products is too great to be under-estimated. The search for viable alternatives, such as phytonutrients has become necessary to keep the pace of healthy production and safe products to appreciable level. This study was therefore designed to evaluate the effect of *Peperomia pellucida* supplementation on performance, internal and external quality of the eggs, gut morphological indices, histopathological indices, haematological indices and lipid profile of laying hens in a 42-day feeding trial. Fifty-four 20-week-old Isa-brown laying hens were randomly assigned to three dietary treatments and replicated six times with three birds per replicate. Treatment 1 was a basal diet, while treatments 2 and 3 contained the basal diet with 0.5%, and 1% *Peperomia pellucida* powder, respectively. Performance indices were evaluated. On day 42, haematological indices, lipid profile, gut morphological indices, histopathological indices, internal and external quality of the eggs were examined following standard procedure. Data obtained were analysed using descriptive statistics and ANOVA at  $\alpha_{0.05}$ . The results showed that feed intake, white blood cell, monocyte, basophil counts, high density lipoprotein, total cholesterol, low density lipoprotein, yolk width, albumen height, haugh unit, were significantly influenced by dietary treatments. Diets had no significant influence on the gut morphological indices. Histopathological observations of the ileum showed that no visible lesion in the ilea of the birds on both experimental diets and basal diet. The villi of hens fed with 1% *Peperomia pellucida* diet appeared slightly stunted. Conclusively, 0.5 % *Peperomia pellucida* dietary level was considered the best level for laying hens as growth promoters thereby being a viable alternative to antibiotics.

**Introduction**

- Antibiotics as growth promoters have helped to maintain healthy birds and boost productivity and performance, but its adverse effects on birds and humans cannot be ignored (Hughes and Heritage, 2004). Hence, the use of antibiotics as growth promoters was banned in Nigeria by the National Agency for Food and Drug Administration and Control (NAFDAC, 2018).
- In search of viable alternatives to increase animal productivity, the ethnomedicinal plant like *Peperomia pellucida* (Pepper elder) shows a great potential because of its antimicrobial, anticancer, anti-inflammatory and antioxidant properties (Wei *et al.*, 2011). *Peperomia pellucida* (L.) Kunth is a slender, shallow-rooted herb that can be wild or cultivated. It is an annual plant usually growing to a height of about 6 to 18 inches, it is characterized by its glossy, light-green fleshy leaves, and succulent stems that root at the nodes and fruiting spikes with dot-like seeds (The Green Institute, 2020).
- Several studies have also described its antimicrobial, cytotoxic, antidiabetic, antihypertensive, anti-inflammatory, antioxidant, anti-glycation, gastroprotective antihyperglycemic, antiosteoporotic, immunostimulatory, anti-angiogenic activities and a variety of other bioactivities (Alves *et al.*, 2019; Men *et al.*, 2022).
- Similarly, studies have also shown that *Peperomia pellucida* contains alkaloids, polyphenols, flavonoids, and essential oils (Silva *et al.*, 1999; Usman and Ismaeel, 2020). These compounds have been approved for their antimicrobial activities in animal nutrition and human medicine (Omidiwura *et al.*, 2022).
- Against this background, this study aimed at evaluating the effects of *Peperomia pellucida* supplemented diets on growth performance, internal and external attributes of eggs, gut morpho-pathological indices and blood profile of laying hens.

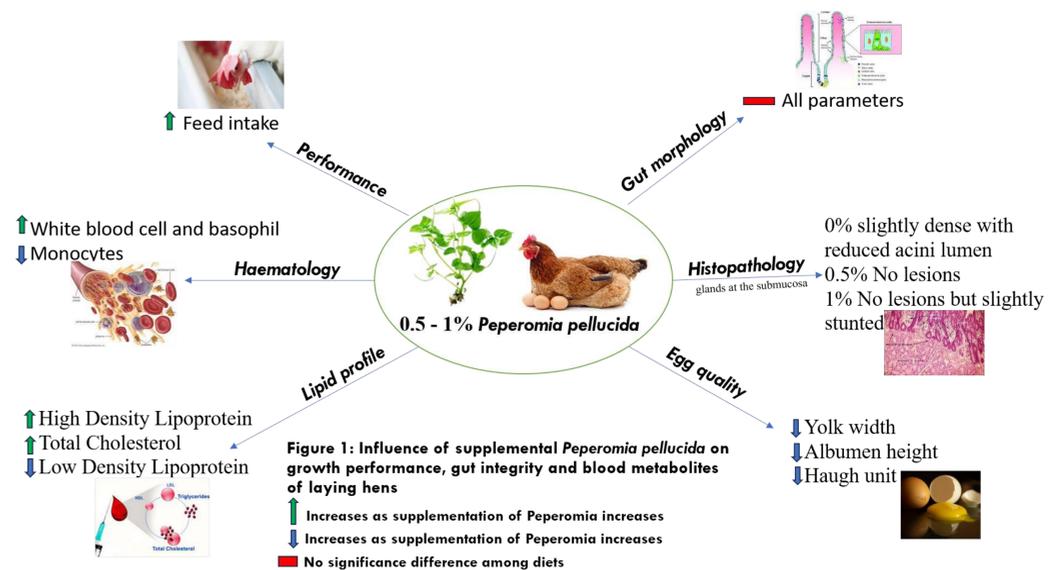
**Material and method**



**Statistical analysis**

Data obtained were analyzed using descriptive statistics and ANOVA, using completely randomized design of Statistical Analysis System (SAS, 2008). The treatment means were separated using Duncan's Multiple Range Test of the same software package to test significant differences ( $p = 0.05$ ) among the means.

**Results and discussions**



**Conclusions**

- Peperomia pellucida* inclusion up to 1% had no significant effect on performance parameters, internal and external attributes of commercial eggs and gut morphological indices of laying birds except for the feed intake and yolk width. However, it did not elicit any deleterious effect on the parameters measured, haematological indices and lipid profile. In histopathological aspect of the research, 0.5% inclusion of the experimental diet was considered to be the safest for the laying hens.
- Therefore, *Peperomia pellucida* up to 0.5% inclusion can be used as viable alternative to antibiotics administered as growth promoters.

**References**

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