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## Utilization and Evaluation of *Moringa Oleifera* L. As Poultry Feeds

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### Abstract

Three studies were conducted to evaluate the effects of *Moringa oleifera* leaf powder and leaf meal on chicken layer and broiler diets. The effect of different levels of *Moringa oleifera* leaf powder (MOLP) on laying performance of 480 Lohmann LSL Classic, 27- week old and the post-molting performance of 240 heads, 89- week old forced-molted Lohmann LSL Classic with 72% egg production were both conducted in four months. They were randomly distributed in Completely Randomized Design (CRD) to 5 dietary treatments with 6-replicate per treatment. One hundred fifty day-old Cobbs broiler were randomly assigned to five dietary treatments in Complete Randomized Design (CRD) with 30 birds per treatment. The treatments include: T1- Basal diets; T2-0.20% MOLM; T3-0.30% MOLM; T4-0.40% MOLM; T5-0.50% MOLM. The results reveal that feed consumption, FCR, % egg production, income over feed cost, sensory characteristics of egg and shell thickness of 27-42 and 89-101 week old layers were not significantly different ( $P < 0.05$ ). Egg weight and feed cost per kg of egg produced of forced- molted layers were significantly different ( $P > 0.05$ ). Broiler performance in-terms of ADG, feed intake, FCR, final weight and income over feed cost were not relatively better over the control.

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## 1. Introduction

With the continuing increase in demand of raw feed materials that will suffice the needs of animal growers, a call for extensive search on utilization of the cheap and quality alternative feed sources from indigenous plant species was formulated. The development of the potential indigenous plants as sources of animal feedstuffs might not only decrease dependency of the feed industry on expensive imported feed ingredients but relatively reduces the production cost leading to the animal grower's economic efficiency. Food and Agriculture Organization (1996) the numerous uses of *Moringa oleifera* as medicine, low cost water purifier (flocculant), human food and animal feed, hedge, seed oil, fiber, its easy propagation and pan tropical cultivation justify more intensive research into its biological and economic possibilities particularly as useful feed ingredients and medicines.

The limited studies on the effects and usage of the plant leaves as feed ingredient are breakthroughs towards extensive investigation of its possibilities and viability as a feed source. The essential nutrient contents of *Moringa* leaves/twigs such as Vitamin A & B-vitamins, calcium, iron, copper, sulfur and protein and its ability to absorb and neutralize toxic elements in food could justify its significance in developing the plant as one of the major local feed stuffs (Lanaon 2007). With the application of proper processing techniques, high value *Moringa oleifera* leaf meals can be comparably produced with the existing ones in the industry today.

## 2. Materials and Methods

### 2.1. Effect of Diet Supplemented with Varying Levels of *Moringa Oleifera* Leaf Powder on Chicken Laying Performance and Egg Quality

A total of 480 Lohmann LSL-Classic, 27 weeks of age were used in 4-month feeding trial. They were randomly distributed to five dietary treatments in complete randomized design (CRD) with six replicates per treatment with 16 layers per replicate. The experimental treatments are as follows:

- T1- Basal diets/control
- T2- 0.2% *Moringa* leaf powder of the layer diet
- T3- 0.4% *Moringa* leaf powder of the layer diet
- T4- 0.6% *Moringa* leaf powder of the layer diet
- T5- 0.8% *Moringa* leaf powder of the layer diet

The biological performance of the birds were determined based on hen-day egg production, daily feed consumption, %egg production, hen-day egg production and mortality were taken. Egg weight and sizes were recorded daily while feed efficiency and egg quality were measured on a bimonthly basis. The methods applied by Bueno and Espiritu, 2005 on sensory egg evaluation were used;

- Flavor: 6= rich full flavor; 5= full flavor ; 4= slightly full flavor ; 3 =neither full or weak flavor; 2 = slightly weak flavor; 1= moderately weak flavor.
- Off-flavor: 6= very strong off-flavor; 5=strong off-flavor; 4= slightly off-flavor; 3= highly perceptible; 2= moderately perceptible; 1= slightly perceptible.
- General acceptability: 6=very desirable; 5=desirable; 4= slightly desirable; 3= neither desirable nor undesirable; 2= slightly undesirable. 1= moderately undesirable

Significant differences among the means were determined using one-way analysis of variance (ANOVA) and DMRT at 5% level of significance. The computer software SAS Version 6.2 was used to facilitate mathematical calculations.

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