EFFECT OF *PHYLLANTHUS NIRURI* ON THE NUTRIENT DIGESTIBILITY OF LAYING CHICKEN

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ABSTRACT
Herbal and plant medicine have become acceptable solution to the negative effects of prescription medications. Livestock industry has identified and accepted the use of herbal and plant medicine due to the sight effect of contemporary medications. The Poultry Unit of The Federal Polytechnic, Ilaro, was the experimental site where how Phyllanthus niruri affected the ability of layer birds (Issa brown) to assimilate nutrients was carried out. *The data were examined using One-Way ANOVA. The crude protein digestibility of birds given T4 was found to be significantly greater (P<0.05) at 23.71%. than those on T1 (14.47%) which also was higher to those fed T3 (1.06%) and those on T2 (3.78%). It was concluded that Phyllanthusniruri supplementation to the diets improved the feacal digestibility of crude protein, crude fibre and ash of laying chicken.*
Keywords: Antibiotics Phyllathusniruri, Nutrient digestibility, Diet.

INTRODUCTION

In recent years, the livestock industry has come to recognize and extend the use of herbal and plant medicine, due to the negative effects of contemporary medications, high input prices, hazardous food residues and microbial resistance (Kuralkar and Kuralkar, 2021). Natural products are now preferred to the synthetic products due to thebelief that natural product have less negative effects and unintended consequences (Kuralkar and Kuralkar 2021; Laudato and Capasso, 2013).

An acceptable solution to the negative effects of prescription medications can be found in the proper application of herbal remedies. In order to combat residual issues and the increasing resistance of microorganisms, these can restrict the needless use of antibiotics and other chemical medications (Kuralkar and Kuralkar 2021;NAVS, 2015).

The leaves, roots, tubers, or fruits of herbs, spices, and other plants can be used to make plant extracts and other phytobiotics, which have been shown to be extraordinarily efficient in promoting animal development, according to Dharma et al. (2015), Wallace et al. (2010), and Steiner (2009).*Phyllanthusniruri*, a tropical plant which belongs to the Euphorbiaceae family, is widely distributed and highly prized for its many ethno-medical purposes (Meena*et al*., 2018; Tjandrawinata, 2011). It has several pharmacological characteristics, including the ability to modulate the immune system, albeit antiviral, antibacterial, diuretic, counteract hyperglycemia, and protect the liver (Lee *et al*., 2016).

*Phyllanthusniruri*contains bioactive substances including terpenoids, alkaloids, flavonoids, saponins, and tannins that have antibacterial action (Hidnah*et al*., 2018; Lee *et al*., 2016; Zheng*et al*., 2016). The aim of the research was to determine how *Phyllanthus niruri* affected the nutritional digestibility of (pullets) layer birds.

MATERIALS AND METHODS

Experimental Site

The study was conducted at the Federal Polytechnic's Poultry Unit, Teaching and Research Farm, located in Ilaro, Ogun State, Nigeria.

Experimental Diet and Animal

Isa Brown pullet chicks (n-480) were obtained from a reputable hatchery located at Ibadan, Oyo State, Nigeria, brooded for four weeks, then assigned to six treatments (80 birds each)of four replicates (20 birds each) in a fully randomized method.

The following diets were used as treatments:

T1 (without any additive)

T2 + Antibiotics (Tylo-Dox Extra WPS)

T3 + 0.2% P. niruri leaf meal (PNLM)
T4 + 0.3% PNLM
T5 + 0.4% PNLM
T5 + 0.5% PNLM

Nutrient Digestibility

At the 20th week of the feeding trial, four birds from each treatment group were transferred to the metabolic cages for excrement collection for digestibility tests. In the morning, fresh excreta were gathered, weighed, and then oven dried for three days at 40^0C. Analysis of the oven-dried excreta was according to AOAC (2004).

Apparent Nutrient Digestibility (%) =(Nutrient intake –Nutrient output/Nutrient intake)x 100

Statistical Analysis

SAS (2010) software was used to do a one-way analysis of variance (ANOVA) on the data. The same software's Duncan's Multiple Range Test option was used to differentiate the means at $P<0.05$.

RESULTS

Effect of *Phyllanthusniruri* leaf meal inclusion on nutrient digestibility of pullets

Table 1 displays the apparent nutritional digestibility of growing pullets fed diets containing varying amounts of *Phyllanthusniruri* leaf meal. The findings revealed that there were significant ($P<0.05$) variations in ash, ether extract, crude protein, and crude fiber. The crude protein digestibility (23.71%) of T4-fed birds was substantially greater ($P<0.05$) than that of T1 (14.47%), T3 (1.06%), and T2 (3.78%).

Nutrient digestibility parameters of pullets fed with *Phyllanthusniruri*leaf meal

Parameters (%)	T1	T2	T3	T4	T5	T6	SEM±
Dry matter	10.34	14.53	12.75	9.46	11.83	14.04	0.46
Crude protein	14.47	3.78	1.06	23.71[a]	7.09	20.57[b]	0.27
Crude fibre	7.63	27.15	43.11[a]	31.21	12.67	37.36[b]	0.25
Ether extract	32.80	51.06	49.59	37.37	41.58	50.33	2.64
Ash	54.40[ab]	50.00[c]	74.73[a]	66.19[b]	47.29[d]	56.32[ab]	0.22

Means in the same row bearing different superscripts a, b, c, d, e, f, differ significantly ($P<0.05$).

DISCUSSION

The observed differences in nutrient digestibility of growing pullets fed diets containing different levels of *Phyllanthusniruri* leaf meal (PNLM) as additive, is consistent with the findings of Murugesan *et al*. (2015) that adding phytogenic feed additives to the basic diet greatly raised the crude protein's apparent whole tract digestibility. The improvement in absorption could be partially attributed to increased enzyme activity, bile and saliva secretions, as well as stimulation (Jang *et al*., 2007).

Consequently, birds' health is benefited by the increased nutritional digestibility. Conversely, Muhl and Lieber (2007) could not find any evidence of enhanced enzymatic activity or nutritional digestibility in weaned piglets given diets containing a 0.05%, 0.10%, or 0.15% phytogenic product with tannins, carvacrol, and thymol as major ingredients.

CONCLUSION

Dietary supplementation of *Phyllanthusniruri* improved the feacal digestibility of crude protein, crude fibre and ash of laying birds.

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