

EFFECTS OF FEEDING DESERT LOCUST MEAL (*SCHISTOCERCA GREGARIA*) ON PERFORMANCE AND HAEMATOLOGY OF BROILERS

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INTRODUCTION

Locust and grasshoppers have been some of the greatest agricultural pests since the beginning of civilization. They are the most voracious pests known capable of eating their own weight (2-3g) of vegetation daily (Alomenu, 1998).

Plagues of locusts devastate crops, pastures, orchards and entire countries or even continents.

In 1958, the locust invasion of Ethiopia resulted in losses of 50-150 thousand tonnes of cereals in less than six months, equivalent to the annual cereals requirement of about one million people (Bidochka and Khachatourians, 1991).

Symmons (1992), reported that about \$275 million was spent on application of 15 million litres of pesticides in the locust plague of 1986-1989, the first in many years in the Sahel covering over 25.9 million hectares of land (Showler, 2002).

However, locusts could have beneficial effects as a source of protein in animal nutrition like some other insects. Das (1954) analyzed the locust, *Schistocerca gregaria* for use both as food and fertilizer. The locusts (adult) were reported to have 61.75% crude protein and 16.95% fat.

Therefore, locust could be a good source of cheaper protein compared to fishmeal in animal rations. And this will assist many countries to cut down expenses incurred on the control of this devastating but valuable pest.

This study investigated the nutritional potentials of desert locust as a protein source in broiler chicken diets on the globe especially Africa.

MATERIALS AND METHODS

Ninety-six day-old unsexed broiler chickens (Abor acre) were randomly distributed to four diets containing 0, 1.7, 3.4 and 6.8% desert locust meal, as replacement for the equivalent protein supplied by fishmeal in the control diet.

The proximate analyses of the nutrients, mineral composition of locust meal and the experimental diets were determined using the methods described by A.O.A.C (1990)

At the end of the starter phase, (day 28), a bird per replicate was randomly selected making a total of 3-birds per treatment. The birds were bled from the neck via the jugular vein from which blood was collected for haematological and serum metabolite studies. Analysis of variance of the data collected was carried out using SAS methods of 1999 at 5% level of probability to assess significant differences.

Treatment means were separated using Duncan's multiple range test (Duncan, 1980).

RESULTS

Proximate composition of locust meal revealed that the sample used for this study has a crude protein of 52.3% on dry matter basis. The ether extract, crude fibre and Ash were 12.00, 19.00 and 10.00 percent respectively.

Results showed no significant differences ($p > 0.05$) among the treatment means.

The best FCR was obtained from treatment 2 (1.94) for the starter phase when the locust meal was used to replace 50% protein contributed by the fishmeal in the diet.

No significant differences ($p > 0.05$) were observed among the means for the various haematological indices examined.

Table 1: Proximate composition of locust meal (%)

Dry matter	94.00
Crude protein	52.30
Ether extracts	12.00
<u>Ash</u>	<u>10.00</u>

Table 2: Performance Characteristics of Broilers Fed Desert Locust Meal Diets

Parameters	1	2	3	4
Ave. total feed intake(g/bird)	4257.17	4658.28	3919.31	3918.39
Ave. total feed weight gain(g/bird)	1852.53	2097.43	1692.08	1722.95
Feed Conversion Ratio(0-8 wks)	2.30	2.22	2.32	2.27
Feed Conversion Ratio(starter phase)	2.09	1.94	2.29	2.03
Feed Conversion Ratio (Finisher phase)	2.36	2.32	2.33	2.35

Table 3: Haematological Indices of Broilers Fed Desert Locust Meal Diets

Parameters	1	2	3	4
PCV (%)	34.33	33.33	34.67	33.33
Haemoglobin(g/dl)	11.23	10.87	7.83	10.83
RBC x10 ⁶ (μ /mm ³)	2.93	1.85	2.60	2.16
WBC x10 ³ (μ /mm ³)	17.18	15.12	17.53	16.62
Platelets x10 ³ /mm ³	110.67	106.33	120.67	121.00
MCV (%)	119.67	191.67	147.67	184.33
MCH (%)	32.33	32.33	31.67	32.33
Lymph (%)	68.00	71.00	70.00	69.33
Neutrophils (%)	1.33	1.00	1.67	1.67
Eosinophils (%)	1.33	1.50	1.33	1.33

CONCLUSION

The result indicates that desert locust has great potential as a protein source in broiler diets without causing any physiological disorder as reflected in the haematological analysis.

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