Effect of Supplementing Dietary Sheath Sunflower on Performance and Carcass Characteristics of Broiler Chicks

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INTRODUCTION

The world today is facing a huge shortage of livestock feed ingredients such as wheat, corn and soybean etc., because of the rapid increase in human population and the competition for the feedstuff between the increase human population and livestock **(Esonu *et al*., 2011)**. Feed accounts for 60-70% of the cost of poultry production. Efforts to reduce the high cost of feeds and therefore the cost of poultry products have concentrated on the use of cheaper and locally available alternative agro by-products, especially those that have no nutritional value to mankind **(Oladunjoye and Ojebiyi, 2010)**. For example sun flower seeds are pointed at the base and around at the top. This base is paddy (sheath) of sunflower which is not use for animal feed. However, data on using it for poultry is scare. Therefore this study aimed to investigate the effect of supplementing dietary sheath sunflower on performance and carcass characteristics of broiler chicks

MATERIAL AND METHODS

The experiment was conducted during the period from April to June 2016 (Temp. 27-33ºC) in Poultry Research Unit, University of Khartoum. Sheath sunflower **(SSF)** were collected from farm in Khartoum North, and it were taken for proximate analysis using standard methods **(AOAC 1980).** One hundred and forty-four one day old unsexed commercial broilers chicks **(Ross)** with initial body weight was **45 ± 3 g** were distributed into 3 replicates per treatment with **12 chicks/replicate** in a completely randomized design. Four experimental diets were formulated according to nutrient specifications of the standards published by National Research Council **(NRC, 1994)** with five levels of SSF: **0 %, 2 %, 4% and 6%.** Chicks were weighed on the first day of the experimental feeding as initial weight, then weekly weighting was systematic until the end of the experiment. Feed intake was determined weekly. Body weight gain, feed conversion ratio **(FCR)** and protein efficiency ratio **(PER)** were calculated. The feeding trail lasted for six weeks. At the end of the experiment, two birds/ replicate were slaughtered. Carcass weight, Dressing percentage and some internal organs were determined. Data obtained was analysis according to SPSS computer program.

Table (1): Chemical composition of SSF:

Dry matter	89.32 %
Crude Protein	15.59 %
Ether Extract	5.31 %
Crude Fiber	33.65 %
Ash	18.82 %
NFE	15.75 %
ME	1978.23 kcal/kg

NFE= Nitrogen free extract;
ME= Metabolizable energy (ME calculated according to Lodhi et al., 1976).

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RESULT AND DISCUSSION

Table (2): Performance of broiler chicks fed different level of SSF:

Constituents	Dietary level of sheath sunflower				
	(A)	(B)	(C)	(D)	± SE
Feed Intake	1791.5^{a}	2823.5^{a}	2625^{b}	2536.4^{c}	22.52
Body Wt. gain	1414.8^{c}	1649.8^{a}	1489.9^{b}	1356.5^{d}	12.63
FCR	1.91^{a}	1.71^{a}	1.75^{a}	1.87^{a}	0.39
Protein intake	614.02^{a}	621.00^{a}	577.20^{b}	557.8^{b}	4.95
PER	2.50^{a}	2.71^{a}	2.62^{a}	2.47^{a}	0.55
Mortality	0	0	0	0	0.00

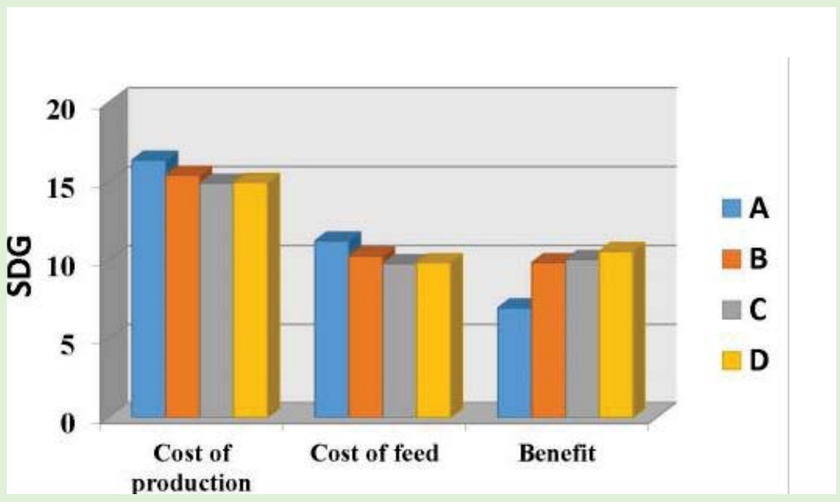
(A) Control diet; **(B)** 2% SSF; **(C)** 4% SSF; **(D)** 6% SSF; **SE**= Standard error of mean

Table (3): carcass characteristics of broiler chicks fed different level of SSF:

Constituents	Dietary level of sheath sunflower				
	(A)	(B)	(C)	(D)	± SE
Live wt. (g)	1298.9^{b}	1635^{a}	1568.3^{a}	1493^{ab}	39.8
Carcass wt. (g)	856.5^{b}	1095^{a}	1038^{a}	996^{ab}	28.2
Dressing %	65.9^{a}	66.9^{a}	66.9^{a}	66.6^{a}	0.26
Gizzard %	3.62^{a}	3.72^{a}	3.58^{a}	3.75^{a}	0.10
Liver %	3.43^{a}	3.39^{a}	3.79^{a}	3.36^{a}	0.08
Spleen %	0.15^{a}	0.12^{a}	0.14^{a}	0.18^{a}	0.01
Heart %	0.69^{a}	0.75^{a}	0.66^{a}	0.71^{a}	0.09
Abd. fat %	2.04^{a}	1.99^{a}	2.05^{a}	2.40^{a}	0.09
Intestine %	7.37^{a}	6.88^{a}	7.46^{a}	7.63^{a}	0.17

(A) Control diet; **(B)** 2% SSF; **(C)** 4% SSF; **(D)** 6% SSF; **SE**= Standard error of mean

Fig. Economic analysis of broiler chicks fed different level of SSF (SDG/bird):



CONCLUSION

Up to **6%** SSF could be incorporated into the diet of broiler chicks without any adverse effect on the performance and carcass characteristics. It reduced feed cost and lower cost per kg weight gain observed on the SSF based diet. These are incentives that could warrant the recommendation of SSF as a dietary component for broiler chicks. However, further investigation and more research in this area should be conducted.