



EFFECT OF FENUGREEK (*Trigonella Foenum-Graecum*) SEED EXTRACT ON VISCERAL ORGANS OF BROILER CHICKS

Farman Ullah Khan¹, F. R. Durrani¹, Asad Sultan¹, Rifat Ullah Khan² and Shabana Naz³

¹Department of Poultry Science, NWFP Agricultural University, Peshawar, Pakistan

²Department of Physiology and Pharmacology, University of Agriculture, Faisalabad, Pakistan

³Department of Zoology and Fisheries, University of Agriculture, Faisalabad, Pakistan

E-Mail: dr_pets@hotmail.com

ABSTRACT

The purpose of this research work was to evaluate the seed extract (aqueous) on the visceral organs of broiler chicks. One hundred and sixty, day old broiler chicks were randomly assigned to four treatments A, B, C and D. Each treatment was replicated four times with ten chicks per replicate. Group A, B, C received the aqueous extract of Fenugreek @ 10, 20 and 30 ml/L, respectively while group D served as a control. Chicks were reared in cages (3 × 4 feet) in an open sided house. Data were recorded for. Statistical analyses were conducted, using Completely Randomized Design and MSTATC programme. Liver weight was not significant in any group, however, it was higher in group B and C. Gizzard weight though did not increased however, in treated group it was higher than control. In contrast intestines weight was higher in control group as compared to treated groups. It was concluded from this study that aqueous extract of Fenugreek has amply good effect on the weight on visceral organs which are second to none in importance in both taste and popularity among the people.

Keywords: Fenugreek, broilers, visceral.

INTRODUCTION

Antibiotics as growth promoter in poultry feed are posing serious health risks to human health, because of their residual effects in poultry meat and eggs result pathogens develop resistance to antibiotics. Poultry scientists today are challenged to find out new alternatives to antibiotic growth promoters with no side effects for poultry that could be more or as effective against harmful micro organisms in the gastrointestinal tract and to stimulate the growth by increasing the efficiency of feed utilization and to enhance the immunity. There are a lot number of compounds and products in nature that have the potential of stimulating growth and combating various diseases by the virtue of being antibacterial, antifungal etc. Phytobiotics are the substances obtained from the medicinal plants and herbs have wide range medicinal properties and are the best possible alternatives to antibiotics as growth promoter.

Fenugreek (*Trigonella Foenum-Graecum*) found in nature and is cultivated in India and Pakistan is a well known medicinal plant having properties of reducing blood sugar level (Raghuram *et al.*, 1994), anthelmintic, antibacterial (Bhatti *et al.*, 1996), anti-inflammatory, antipyretic (Ahmadiani *et al.*, 2001), and antimicrobial (Alkofahi *et al.*, 1996). It contains lecithin and choline that helps to dissolve cholesterol and fatty substances, minerals, B. Complex, iron, Phosphates, PABA (Para-Amino Benzoic Acid), and vitamins A and D. It also contains neurin, biotin, trimethylamine which tends to stimulate the appetite by their action on the nervous system (Michael and Kumawat, 2003). The important chemical constituents are saponins, coumarin, fenugreekine, nicotinic acid, phytic acid, scopoletin and trigonelline. Based on the worth mentioning values of Fenugreek, a research study was designed to explore its

effects as growth promoter of visceral organs of broiler chicks.

MATERIALS AND METHODS

One hundred and sixty (160) day old broiler chicks were purchased from a local hatchery that were divided into four treatment groups A, B, C and D, with four replicates of 10 chicks each, per group in a Completely Randomized Design (CRD). Chicks were reared in cages in an open sided house, provided with feeders, drinkers, electric bulbs and sand was used as bedding material. Strict sanitation practices were applied throughout the experiment. Group A, B and C was given fenugreek infusion @ 10 ml, 20 ml and 30ml/liter of drinking water respectively, and D was kept as control. Data were statistically analyzed with Computer package MSTATC and comparison of mean was made by Duncan's multiple- range test (Steel and Torrie., 1980). Deworing and vaccination was done according to the schedule. The composition of basal diet is as follows (Table-1):

Preparation of 6% (w/v) concentrated fenugreek seed infusion

Fenugreek seed infusion was prepared according to the method described by Leila (1977). Seed were collected from the local area of District Peshawar and were dried for 24 hours at 37°C in oven. Exposure to sunlight was avoided to prevent the loss of active components. Dry seed were then ground in a grinding machine; 60gm of dried ground seed were taken in a non-metallic jar and one liter of hot boiled distilled water were poured on it and was kept at room temperature for 5-8 hours to prepare an infusion.

**Table-1.** The ingredients and composition of basal diet.

Ingredients and composition	Starter	Finisher
Yellow corn (%)	63.8	72.2
Soy bean meal (44% CP)	28	21.5
Fish meal (72% CP)	5	3
Lime stone (%)	1.6	1.6
Dicalcium Phosphate (%)	1	1.2
Vitamin and Minerals* (%)	0.1	0.1
DL. Methionine (%)	0.2	0.1
Sodium Chloride (%)	0.3	0.3
Coccidiostat (5%)	0.05	0.05
Metabolizing Energy (Kcal/kg)	2921	2994
Crude Protein (%)	21.4	18.1
Lysine (%)	1.19	0.93
Methionine (%)	0.55	0.33
Methionine and Cysteine (%)	0.89	0.62
Calcium (%)	1.09	1.08
Total Phosphate (%)	0.98	0.68

*Supplied the required vitamins and minerals.

RESULTS AND DISCUSSIONS

Mean weight of giblet (heart, liver and gizzard) and intestines are given in Table-2. No difference ($P>0.05$) was observed in mean weights of giblet in all groups of the present research study. It means that fenugreek infusion having antimicrobial and antibiotics like properties have no influence on either increasing or decreasing the relative weights of giblet. These finding are in contrast to the results of the Fairley *et al.*, (1985). He reported that an increase ($P<0.05$) occurred in the relative proportions of giblet, when broiler chicks were fed an antibiotic avoparcin. The result of liver weight of this study was not effected significantly in either treated or control groups which is in agreement to the findings of Guo *et al.*, (2004) who reported that a Chinese herbal medicine containing fenugreek and an antibiotic virginiamycin did not influence ($P>0.05$) the liver weight in broiler chicks.

Table-2. Mean of different parameters in response of different levels of aqueous extract of *Trigonella foenum-graecum*.

Parameters	Groups			
	A	B	C	D
	10 (ml/L)	20 (ml/L)	30 (ml/L)	Control
Liver	26.2	27.1	27.1	27.7
Heart	10.5	10.3	10.6	10.5
Gizzard	42.6	42.1	42.4	41.7
Intestines	94.6	97.0	92.4	105.0

Means in column with different superscripts were significantly different at $\alpha = 0.05$.

Weight of liver, heart, gizzard and intestines are important from the point view of its popularity among the people. Although the muscular parts are most preferred among the people the liver, heart, gizzard and intestines are not less important for its taste and popularity among the people. It was concluded from this study that though the Fenugreek (*Trigonella foenum-graecum*) has beneficial effect on the weight of the studied parameters in broiler chicks. It may be possible that the higher aqueous extract concentration may produce significant result in term of weight of these studied parameters in broilers chicks. More research is needed on the microbial and other biochemical parameters of Fenugreek treated broilers.

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