Utilization of Fenugreek (*Trigonella Foenum-Graecum*) as Growth Promoter for Broiler Chickens

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ABSTRACT

The aim of the experiment was to compare the production performance of broiler chickens when fed a conventional standard feed and the same feed supplemented with Fenugreek seeds. One hundred and twenty (120) a-day-old male broiler chicks of the strain ISA-15, were divided into 2 equal groups; a control group (A) and an experimental group (B), with six replicates of 10 chicks each per group (6×10) in a completely randomized design. The control group received a classic feed based on maize and soybean meal and the experimental group was fed the same control feed without antibiotic and coccidiostatic and supplemented with Fenugreek seeds at (3g/kg of feed). Fenugreek seeds supplementation significantly (p<0.05) affected Live body weight (LBW), feed intake (FI) and feed conversion ratio (FCR), however, there is no significant difference (P>0.05) for the slaughters parameters (dressing percentage, carcass length) and mortality.

Keywords: Broiler chickens, Feed additive, Fenugreek and Growth promoter

INTRODUCTION

Fenugreek (*Trigonella foenum-graecum* L.) is a well known medicinal plant that grows in nature and mainly cultivated in India, Pakistan and China. Fenugreek seeds have many therapeutic effects like hypoglycemic, anthelmintic, antibacterial, anti-inflammatory, antipyretic, and antimicrobial properties (Bash et al, 2003). It contains neurin, biotin, trimethylamine which tends to stimulate the appetite by their action on the nervous system (Al Habori and Roman, 2002).

Fenugreek is a good source of dietary protein for consumption by human and animals, and of fatty acids which are predominantly linoleic, linolenic, oleic and palmitic (Schryver, 2002). Also it contains many carbohydrates, minerals and vitamins (Michael and Kumawat, 2003). Based on the worth mentioning values of Fenugreek, a research study was designed to explore its effects as growth promoter of broiler chicks.

Several investigators reported that using medicinal plants in broiler diets improved body weight gain and feed conversion efficiency and reduced the cost of feed (Azoua, 2001; Abdel-Azeem, 2006; Farman Ullah et al, 2009). Thus, the objective of the present study was to investigate the impact of

MATERIALS AND METHODS

The aim of the experiment was to compare the effects of Fenugreek seeds supplemented to broiler chickens diets on the production performance.

One hundred and twenty (120) a-day old male broiler chicks (ISA 15) were purchased from a local hatchery and divided into 2 equal groups; a control group (A) and an experimental group (B), with six replicates of 10 chicks each per group (6x10) in a Completely Randomized Design (CRD). The control group receiving diet 1; a classic feed based on maize and soybean meal (Table 1) and the experimental group was fed diet 2, which is the same control feed without antibiotic and coccidiostatic and supplemented with Fenugreek seeds at (3g/kg of feed).

Fenugreek seeds as natural feed additives on the performance of broiler chicks
intake (FI) daily, feed conversion ratio (FCR) and mortality rate. At 6 weeks old, 30 broilers from each feeding group were chosen on the basis of the mean body weight, slaughtered and then dissected in order to determine their carcass dressing percentage and carcass length.

Statistical analysis was performed by SPSS 15.0. The differences were tested by the analysis of variance (ANOVA), and were considered significant at P <0.05.

RESULTS AND DISCUSSION

Table 2 shows that broiler chicks fed diet supplemented with Fenugreek seeds at 3g/kg of feed, had the highest values (p<0.05) of live body weight (LBW) at 21 and 42 days of age. The improvement in body weight may be due to the presence of the fatty acids (Murray et al, 1991), or due to stimulating effect on the digestive system of broilers (Hernandez et al, 2004). These findings were in agreement with those of Azoua (2001) who noted that adding Fenugreek to broiler diet resulted in an increased body weight.

Also Table 3 indicates that feeding of Fenugreek seeds supplemented diet significantly (p<0.05) affected feed intake (FI) value during 42 days of age, while there appeared no significant differences (P>0.05) when broiler chicks fed fenugreek seed during the 21 days of age as compared with control group. The improvement in feed intake with the addition of fenugreek seed could be attributed to the carbohydrates improevement in feed intake with the addition of fenugreek seed. Fenugreek can be an alternative to antibiotic growth promoters and is highly recommended as feed supplement.

Table 2: Feed intake, live body weight and feed conversion ratio at 21 and 42 days of age (mean±se)

<table>
<thead>
<tr>
<th>Groups</th>
<th>FI (g)</th>
<th>LBW (g)</th>
<th>FCR (g/g)</th>
<th>FI (g)</th>
<th>LBW (g)</th>
<th>FCR (g/g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control (A)</td>
<td>568±14.34</td>
<td>357±16.21</td>
<td>1.78±0.08</td>
<td>3210±10.32</td>
<td>1575±35.32</td>
<td>2.23±0.043</td>
</tr>
<tr>
<td>Fenugreek (B)</td>
<td>603±21.32</td>
<td>389±13.56</td>
<td>1.80±0.03</td>
<td>3365±3.32</td>
<td>1712±26.47</td>
<td>1.85±0.052</td>
</tr>
</tbody>
</table>

Table 3: Carcass characteristics at 42 days of age and mortality rate of broiler chickens

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Control (A)</th>
<th>Fenugreek (B)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dressing percentage</td>
<td>68.52±0.94</td>
<td>69.32±0.65</td>
<td>NS</td>
</tr>
<tr>
<td>Carcass length (cm)</td>
<td>27.03±0.56</td>
<td>27.33±0.33</td>
<td>NS</td>
</tr>
<tr>
<td>Mortality (%)</td>
<td>2</td>
<td>0</td>
<td>NS</td>
</tr>
</tbody>
</table>

NS*: not significant

REFERENCES


Azoua HM (2001). Effect of hot pepper and fenugreek seeds supplementation on broiler diets. Ph D
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