MATERIALS AND METHODS

3. 1 Purchase and distribution of broilers:

The study was carried out in the Department of poultry production, Sunderesan School of Animal Husbandry & Dairying SHIATS. Six hundred twenty four (624) day old broiler chicks of the same hatch were procured and reared under deep litter system of sawdust, (thickness 5.3 cm) at Broiler Production Unit. The chicks were weighed, leg banded and distributed in to 13 groups of 48 chicks in each treatment. Chicks of each treatment were further divided into 4 sub groups of 12 chicks in each chamber distributed randomly. Chicks of each sub group were housed comfortably in one chamber by providing 1 sq ft per bird. All the chamber, feeders, water troughs and other equipment were properly cleaned, disinfected and sterilized before using them.

Chicks were fed with standard broiler starter ration from day 1 to day 21 (3 weeks) and then standard broiler finisher ration from day 22 to day 35 (4th and 5th weeks). The two types of ration (starter and finisher) were supplemented with different levels of deferent coccidiostats (Neem leaf powder, Amprolium, and Salinomycin) either alone or in various combination.

3.2 Mixing of Standard Broiler Ration (basal diet)

The standard broiler starter ration contained CP=22 and ME-2900, while the standard broiler finisher ration contained CP = 19 and ME=3000. These were fed ad lib to the birds as per (1992). The ingredients and nutrient compositions are presented in Table 3.1.

First of all, the basal diet was prepared for all 624 chicks and divided into 13 batches, one for each treatment. Each batch was then divided into individual doses with the different levels of Neem leaf powder, Amprolium and Salinomycin or in combinations as per different treatments and mixed thoroughly.
Table 3.1 Ingredients and nutrient composition of experimental diet

<table>
<thead>
<tr>
<th>Ingredients (%)</th>
<th>Broiler starter (0-21 days)</th>
<th>Broiler finisher (22-35 days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>60.00</td>
<td>63.00</td>
</tr>
<tr>
<td>Ground nut cake</td>
<td>23.35</td>
<td>18.00</td>
</tr>
<tr>
<td>Fish meal</td>
<td>13.00</td>
<td>15.00</td>
</tr>
<tr>
<td>Mineral mixture</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Common salt</td>
<td>0.05</td>
<td>0.38</td>
</tr>
<tr>
<td>Vitamin premix</td>
<td>0.05</td>
<td>0.02</td>
</tr>
<tr>
<td>(vit. A, B&lt;sub&gt;2&lt;/sub&gt;,D&lt;sub&gt;3&lt;/sub&gt;)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Nutrient composition**

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Broiler starter (0-21 days)</th>
<th>Broiler finisher (22-35 days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture (%)</td>
<td>6.29</td>
<td>6.22</td>
</tr>
<tr>
<td>Crude fibers (%)</td>
<td>5.50</td>
<td>6.00</td>
</tr>
<tr>
<td>Total ash (%)</td>
<td>8.02</td>
<td>9.34</td>
</tr>
<tr>
<td>Crude protein (%)</td>
<td>22</td>
<td>19</td>
</tr>
<tr>
<td>ME (Kcal/kg)</td>
<td>2900</td>
<td>3000</td>
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</table>
3.3 Treatments used in the experiment.

T0  (Control) basal diet with no supplement

T1  NeemLeaf Powder100 g + 50 Kg diet

T2  NeemLeaf Powder150 g +50 Kg diet

T3  NeemLeaf Powder200 g +50 Kg diet

T4  Amprolium 25 g (recommended dose )+50 Kg diet

T5  Amprolium 25 g + NeemLeaf Powder100 g +50 Kg diet

T6  Amprolium 25 g+ NeemLeaf Powder150 g +50 Kg diet

T7  Amprolium 25 g+ NeemLeaf Powder200 g+50 Kg diet

T8  Salinomycin 10 g (recommended dose) + 50 Kg diet

T9  Salinomycin 10 g+ NeemLeaf Powder100 g+50 Kg diet

T10  Salinomycin 10 g+ NeemLeaf Powder15og+50 Kg diet

T11  Salinomycin 10 g+ NeemLeaf Powder200 g+50 Kg diet

T12  Amprolium 25 g+Salinomycin20 g+50 Kg diet

3.4 Data Recorded

1- Live Body Weight

Body weight is a very important trait in the broiler industry. Many studies were conducted to investigate the effects of coccidiostats on the body weight of broilers. The initial weight of each DOC was recorded on arrival. Thereafter, body weight was recorded weekly to determine growth rate and weight grain of the chicks. Body weight was measured by digital balance for all birds at the beginning of the experiment, and it was repeated weekly at the beginning of the week at the same time.

2-WeeklyBody weight gain

Body weight gain was calculated by the equation: Body weight gain = B.W at the end of week - B.W at the beginning of week. (Naji, 2006).
3- Weekly Feed Consumption

Feed cost represents approximately 60 – 70% of the total cost of production for the most classes of livestock and the improvement of the feed efficiency should be a major consideration of the breeding and feeding programs. Feed consumption is the amount of feed consumed every week; it was calculated for each treatment at weekly basis. At the end of the week, the residual amount of feed was weighed and subtracted from the known weight of feed at the beginning of week.

4- Weekly Feed Conversion Ratio (FCR)

Feed conversion is an index associated with both feed consumption and weight gain and well known that broiler chickens are more efficient in conversion of feed than other farm animals.

$$\text{FCR} = \frac{\text{Feed Intake (g)}}{\text{Weight Gain (g)}}$$

5. Mortality

There was no mortality recorded during the production period of study (5 weeks).

3.5 Other Activities

Fresh Neem leaves were collected within the campus SHIAT, Allahabad, UP, India. The leaves were sun-dried for 3-4 days so as to maintain its greenish coloration and to reduce the bioactive components. The Neem leaves were grand to make powder using a hammer mill. The experiment commenced on 8th March 2014 and continued till 11th April 2014 for period of five weeks.

All recommended husbandry practices were carried out as deemed suitable for broiler production under Allahabad. Uttar Pradesh, India.

The chambers were kept clean and fumigate it using formalin with potassium permanganate two days before the arrival of chicks. All broilers had clean drinking water to be taken ad lib at all times. The water troughs were disinfected with 0.02 KMnO₄ solution every day. Feed was distributed between 7.30 to 8a.m.

Other environmental parameters, such as light, temperature and relative humidity were best maintained as recommended. For example, a 100 watt light bulb was
installed in each chamber and switched on during the nights and coolers were installed to reduce the temperature when necessary.

3.6 Statistical analysis

The data on various parameters were recorded tabulated and statistically analyzed using analysis of variance (ANOVA) technique as per Snedecar & Cocharan (1994) in RBD consisting of twelve treatments, one control and four replications.

Table 3.2 Structure of analysis of variance (ANOVA)

<table>
<thead>
<tr>
<th>Source of variation</th>
<th>d.f.</th>
<th>S.S.</th>
<th>M.S.S.</th>
<th>Fcal (5%)</th>
<th>Ttab (5%)</th>
<th>Results NS/S</th>
<th>CD</th>
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<tbody>
<tr>
<td>Treatments</td>
<td>t-1</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Replications</td>
<td>r-1</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Error</td>
<td>(r-1) (t-1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>rt-1</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

d.f = degree of freedom
S.S. = Sum of square
M.S.S. = mean sum of square
F_{cal} = Calculated value
T_{tab} = Tabulated value at 5% level of significance
CD = Critical difference
r = replication
t = Treatment
S = Significant
NS = non-significant
Photo (3.1) Experimental design
Photo (3.2) Day old chicks
Photo (3.3) One week old chicks
Photo (3.4) Two week old chicks
Photo (3.5) Three week old chicks
Photo (3.6) Four week old chicks
Photo (3.7) Five week old chicks