INTRODUCTION

The extensive use of antibiotics in poultry with the purpose of promoting growth rate, increasing feed conversion efficiency and for the prevention of intestinal infections have led to an imbalance of the beneficial intestinal flora and the appearance of resistant bacteria. As it is known that every animal with a digestive system, including humans, has bacteria in their digestive system. Without bacteria an animal could not digest food. Animals have an extremely complex collection of about 100 trillion microorganisms in their entire digestive tract. The intestine of animals contain billions of bacteria, some of which are beneficial (good bacteria), and some which are pathogenic (bad bacteria). Under certain conditions, such as stress, travelling, and antibiotic treatment, the natural balance of beneficial bacteria in the digestive system is disrupted. The number of pathogens increase while the number of beneficial organisms decrease, causing digestion upsets including: diarrhoea, constipation, and discomfort.

In view of severe restriction of total ban on the use of antibiotics as growth promoters and therapeutic agents in poultry industry, the search for alternatives to replace antibiotics has gained increasing interest in animal nutrition. The use of probiotics to improve productivity in livestock is currently generating a great deal of interest. Probiotics are single or mixed culture of living microorganism which when administered in adequate numbers exert health benefit for the host by improving the host intestinal microbial balance, enhancing colonization resistance against pathogens and improving immune response (Tannock, 1999). As microbial feed additives, probiotics offer potential as an alternative to antibiotic growth promoters. They have been reported to have many beneficial effects when used in animal feeds as a means of controlling pathogen carriage, which include competitive exclusion of pathogens (Morishita et al, 1997) and improved digestion and absorption of nutrients (Scheinbach, 1998; Thomke and Elwinger, 1998). These have a positive effect on the growth rate and feed conversion. Therefore, the use of probiotic feed additives is of interest as a cost-effective alternative to controlling animal disease and improving breeding performance (Reuter, 2001).

In animals, direct fed microbial (DFM) can restore the normal balance in the gut and improve the overall health of the animal. Probios® is the world’s most widely recognized, researched, and used brand of DFM. It contained guaranteed levels of Enterococcus faecium, Lactobacillus acidophilus, Lactobacillus casei and Lactobacillus plantarum. Therefore, the study was undertaken to know the effect of feeding probios as supplement on the growth rate of broilers under agro climatic conditions of Arunachal Pradesh.

MATERIALS AND METHODS

An on farm trial was conducted to evaluate the growth performance of Kuroiler chicks fed probios in Daporijo of Upper Subansiri district in Arunachal Pradesh during the year 2013-14 at the farmer’s poultry house. In this trial, fifty kuroiler day old chicks were randomly divided into two groups of 25 each and reared up to 6 weeks of age.

In Control group, the birds were reared without probios feeding and in the treatment group, the birds were fed with probios containing multiple species of microorganism namely Bifidobacterium bifidum, Lactobacillus
acidophilus, Lactobacillus bulgaricus, Lactobacillus casei, Lactobacillus plantarum, Streptococcus faecium, Streptococcus thermophilus and yeast (Torulopsis spp. and Aspergillus oryzae). Each gm of Probios contained 2x10^9 CFU and was used @ 1g/l of water for first 5 to 7 days of life whereas after 30 d, birds were fed @ 1g/4l of water for 5 days as per the recommendations of the product manufacturer. Timely feeding and watering were followed in both the groups. Feed used was standard starter and finisher feed manufactured by a private company in the form of crumbles. The daily feed consumed and fortnightly body weight gain was recorded from each group till 45 days of age. Feed conversion ratio was calculated by following the formula as feed consumed (g) divided by body weight gain (g).

RESULTS AND DISCUSSION
It was found that the body weight, feed conversion ratio and the disease resistance capacity was found better in the treatment group as compared to the control group (Table 1).

The cost benefit Ratio in the control and treatment group was found to be 1:1.8 and 1:1.9, respectively indicating that there was a very small economic benefit of adding probios in the drinking water of chicks. The higher gain in the body weight and better feed conversion ratio in treatment group may be due to colonization of beneficial microorganism in the intestinal tract of the birds which helped in proper utilization of the feed nutrients.

The results obtained in the present study can be explained based on the observations made by Rowland (1992) that one of the most important ways in which a probiotic organism might exert beneficial effect on its host was to modify metabolic processes, particularly those occurring in the gut. The probiotics stimulate host enzymes involved in the digestion of complex nutrients, or provide a probiotic source of these enzymes. Also, probiotics can synthesize vitamins and other essential nutrients not provided in sufficient quantities in the diet. Panda et al (2000) observed significant body weight gain from zero to four weeks of probiotic supplementation but no difference subsequently after four weeks of age in broiler chicks. Modirsanei et al (2003) has also reported improvement in broiler performance when probiotics were added to the diet and recommended the inclusion of probiotics as growth promoter in rations of broiler chickens.

Similarly, Palod and Singh (2004) indicated that the Probiotics in broiler feeding was becoming a new area in biotechnology and offer a possible replacement for the use of sub-therapeutic level of antibiotics in broiler feeds. The probiotics include more than 200 species of bacteria and yeast. The various probiotics available in the market are either single or combination of bacteria, yeast and fungi. The use of probiotics in broiler feed causes better growth, higher feed conversion, better digestibility and improved product quality. Hence, our results were in agreement with those reported in the literature.

CONCLUSION
The result suggested that the average body weight gain and feed conversion ratio were better in probios fed group compared to the control group. Hence, in order to get a higher body weight gain, feed conversion ratio and the disease resistance capacity in the broiler chicks, probios can be used through drinking water as per the recommendations made by the product manufacturer.

REFERENCES

Table 1. Effect of Probios feeding on body weight and feed consumption of chicks.

<table>
<thead>
<tr>
<th>Group</th>
<th>Initial body weight (g)</th>
<th>Final body weight (g)</th>
<th>Gain in weight (g)</th>
<th>Total feed consumed (g)</th>
<th>Feed conversion ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>47.5 ±0.5</td>
<td>1,100</td>
<td>1052.5</td>
<td>2378.5</td>
<td>2.26:1</td>
</tr>
<tr>
<td>Treatment</td>
<td>47.5±0.6</td>
<td>1,500</td>
<td>1452.5</td>
<td>3195.0</td>
<td>2.20:1</td>
</tr>
</tbody>
</table>

J Krishi Vigyan 2015, 3(2) : 97-99
Feeding Probiotic in Kuroiler Birds


Received on 2/12/2014 Accepted on 31//12/2014