Journal of Veterinary and Animal Sciences, 33 (2002) 71-73

Short Communication

INFLUENCE OF LIVE YEAST SUPPLEMENTATION ON ANTIBODY RESPONSE AND SERUM BIOCHEMISTRY IN BROILERS*

Live yeast has been used for other purposes in brewing and baking industries for quite long time, but their application as probiotic in poultry nutrition is relatively new. The use of live yeast as a probiotic has extensively been studied in ruminants (Hoyes *et al.*, 1987 and Chademana and Offer, 1990), but with limited reference to poultry. Hence this experiment was undertaken with the objective of studying the efficacy of *Saccharomyces cerevisiae* (SC), a species of yeast on immunity and serum biochemistry in broilers.

Yeast culture containing live cells of SC was incorporated into the basal diet in two different proportions to prepare the following experimental diets.

T_1 - control
T_2 - control + 0.1 per cent SC
T_3 - control + 0.2 per cent SC

A total of 180 broiler chicks were divided at random into three experimental groups with two replicates, each of thirty chicks. The chicks were fed *ad lib.* with the respective experimental diet throughout the study period (eight weeks). Other standard managemental practices were common to all the chicks, irrespective of treatment. The chicks were vaccinated as per the following schedule (Table).

On 28th day, blood samples were collected for assessing immune response to vaccination against

Table. Schedule of vaccination of experimental birds

Age	Vaccine	Route of Administration
1 day	Marek's Disease	Subcutaneous
5 days	Ranikhet Diease (F_1)	Eye drop
7 days	Infectious Bursal Disease (killed)	Subcutaneous

* *Part of M.V.Sc. thesis submitted to the Tamil Nadu Veterinary and Animal Sciences University, Chennai by the first author.*

Ranikhet Disease (RD) and Infectious Bursal Disease (IBD). The antibody titre against RD was estimated by Heamagglutination Inhibition test (Allan and Gough, 1974) and that against IBD was assessed by Quantitative Agar Gel Immunodiffution test (Wood *et al.*, 1981). At the end of the experiment (56th day), serum biochemical parameters like total proteins, albumin, cholesterol and glucose were estimated from six birds of each treatment. All the data obtained in this study were subjected to analysis of variance under completely rondomised design (Snedecor and Cochran, 1989).

The titre values were transformed into $\log_{10}$ values prior to analysis and the mean values are presented in the Table. Addition of SC (both 0.1 and 0.2%) to the broiler ration enhanced the antibody titre. Though there was rise in antibody titre at both the levels of inclusion, 0.1 per cent level for IBD and 0.2 per cent level for RD were statistically significant ($P < 0.05$). The findings of this study agree with that of Sokolova *et al.* (1986) who also reported increased antibody titre against RD but differs with the result of Sherashov *et al.* (1989) who observed no alteration in natural immunity or immnoreactivity by yeast supplementation. The probiotics are known to stimulate the activity of macrophages and polynuclears. Moreover, increased T-cell activity during probiotic feeding destroys virus infected cells and induces the production of gamma-interferons. These could be the probable reasons for the immunostimulation.

Inclusion of 0.1 per cent SC to the broiler diet had no significant ($P < 0.05$) effect on serum total proteins, albumin, cholesterol and glucose, whereas 0.2 per cent level showed significant ($P < 0.05$) reduction in serum cholesterol level. The result was in accordance with the findings of Stanley *et al.* (1993). The effective catabolism of cholesterol by SC in the intestine could be attributed to the reduction in serum cholesterol level.

Supplementation of live yeast culture containing *Saccharomyces cerevisiae* (SC) in broiler ration enhanced immune status of birds against Ranikhet disease and infectious bursal disease. Serum cholesterol level reduced significantly ($P < 0.05$) with 0.2 per cent SC supplementation, while other serum parameters like total proteins, albumin and glucose remained unchanged.

R. Richard Churchil, B. Mohan and K. Viswanathan**

Department of Poultry Science
Veterinary College and Research Institute, Namakkal - 637 002

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** *Present address: Assistant Professor, AICRP on poultry for eggs, College of Veterinary and Animal Sciences, Mannuthy, Thrissur, Kerala-680 651*