EFFECT OF PROBIOTIC SUPPLEMENTATION ON MILK YIELD AND ITS COMPOSITION IN BUFFALOES (BUBALUS BUBALIS)

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ABSTRACT

The study on effect of probiotic supplementation on milk yield showed that the average daily milk yield was higher (P<0.05) in treatment group (10.58±0.25 liter) compared to the control group (8.88±0.29 liter), but the composition of milk remained unaffected between the two groups with lactose (6.00±0.10 vs. 6.16±0.12 %), fat (6.65±0.10 vs. 6.82±0.15 %) and protein (3.92±0.06 vs. 3.88±0.08 %) content of milk between control vs. treatment groups.

KEY WORDS: Lactobacillus, Saccharomyces, Milk production, Milk composition, buffaloes

INTRODUCTION

Early lactating animals are subject to various stresses due to intensive production pressure in the present farming system, which adversely affects their performance. Under such circumstances antibiotics and synthetic antimicrobial agents are often used to alleviate stress and to improve growth and feed efficiency. However continuous use of sub-therapeutic levels of antibiotics in animal feed results in the residual effect of antibiotics in animal products and development of drug-resistant microorganisms in human beings (Jin et al.,1997). Public disapproval of the use of antibiotics and growth hormones in livestock production necessitates the use of probiotics in the feeding of farm animals.

Because of non harmful effect of probiotics on human health dietary use of probiotics is preferred to that of antibiotics to enhance nutrient utilization, improve feed efficiency and maintain health status. A wide range of microbial feed additives for ruminants including bacterial cultures and mixtures of bacteria and fungi have been found useful . Probiotics enhance growth rate (Pollman et al., 1980) and metabolic activities (Rolef, 2000) as well as increases milk yield and feed efficiency (Ondarza et al., 2010).

Therefore a study was planed to assess the effect of supplementing the probiotics on milk yield and composition in early stage of lactation in murrah buffaloes.

MATERIALS AND METHODS

Ten early lactating murrah buffaloes of nearly same lactating period (1month after parturition) were randomly divided into two groups (control and treatment) of five animals in each group. The animals of the control group were fed with concentrate mixture and mixed straw of wheat, gram and methi in 1:2:1 ratio as recommended by Kearl (1982). The treatment group was fed mixed straw and concentrate mixture with 15 g of probiotics powder (50 million CFU of live Lactabacillus sporogens and 15 million CFU of Saccharamyces cerevisae per gram.) per animal per day for a period of 30 days. Daily milk yield was recorded for individual animal at each milking time. Milk samples from individual animal were collected at weekly intervals and analyzed for fat, total protein and lactose as per BIS (1961).

RESULTS AND DISCUSSION

The results of the present study revealed that during 30 days of the experimental period average daily milk yield was found significantly higher (P<0.05) in the probiotics supplemented group (10.58±0.25 L/animal/d) as compared to the control group (8.88±0.29L /animal /d).The increase

in milk yield was noticed from 11th day , which was continued up to the end of trial. Similar to the present findings Jaquette et al. (1988), Komari et al. (1999) and Block et al. (2000) and Ondarza et al. (2010) also reported that milk yields were increased significantly when lactating cows were fed either culture of L. acidophilus or S. cerevisae alone or in combination. Supplementation of live yeast also improved milk yield significantly (Ondarza et al., 2011).

A non significant improvement was observed in the level of lactose (6.00±0.10 Vs 6.16±0.12 %), fat (6.65±0.10 Vs 6.82±0.15 %) and protein (3.92±0.06 Vs 3.88±0.08 %) content of milk in treatment group. Regarding the milk composition controversial results have ben reported by various workers. Our findings corroborate with the results of Jaquette et al. (1988). In contrast to the present study the reports of Komari et al. (1999) and Gomez-Basauri et al. (2001) showed improvement in the fat percentage of the milk . Improvement in the protein percentage of the milk was reported by Block et al. (2000) and Ondarza et al. (2010) . The economics of probiotic supplementation in the present study revealed that additional cost incurred on probiotic was Rs 5.10 per animal /d and an average increase in milk yield was 1.70 L/animal/d having market value of Rs 37.40 (sale rate Rs 22.0/ L), so there was profit of Rs 32.3 per animal/d in treatment group compared to control group.

The results of the present study indicated that supplementation of probiotics is beneficial in increasing the milk productivity with profit in the murrah buffaloes, while the composition of milk remained unaffected.

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