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Research Article

EFFECT OF PROBIOTICS ON BODY WEIGHT GAIN AND FEED CONVERSION RATIO IN GOAT KIDS

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ABSTRACT

In the present study, 10 Jamunapari goat kids were divided into two groups keeping group I as control. Group II was supplemented with probiotic (Biobloom) @ 5 gm per kid. Body weight gain at 10, 20 and 30 days was recorded and feed conversion ratio was calculated on daily dry matter intake basis. Statistical analysis revealed significant increase in body weight gain and feed conversion efficiency in the supplemented group as compared to control group. So it was concluded that given probiotic was effective in increasing body weight gain and feed conversion efficiency.

Key words: Probiotic, feed conversion efficiency, goat

High growth and improved feed conversion ratio (FCR) are important economic traits in animals. These days many growth promoters in the form of probiotics and growth stimulators are available. Probiotics are the live microbial feed supplements that beneficially affects the host animal by improving its intestinal microbial balance (Fuller, 1989). The microbial ecosystem is very diverse and complicated due to interaction of different microbes in bioconversion of feeds into unsaturated fatty acids (Hobson and Stewart, 1997). Probiotics cause suppression of pathogenic bacteria (Liong, 2007, Ishida *et al.*, 2007), reduce breakdown of intestinal barrier function (Ewaschuk *et al.*, 2007) and enhance immune response (Reilly *et al.*, 2007). Biobloom (Sarabhai, Zydus) is a probiotic containing *Sacchromyces cerevisiae*, *Lactobacillus sporogenes*, enzyme phytase, calcium, phosphorus, proteins, vitamins and carbohydrates. The literature documenting study on effects of probiotics supplementation as growth promoter in goat is lacking. This communication describes the effect of probiotics supplementation on body weight gain (BWG) and FCR in goat kids.

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MATERIALS AND METHODS

Ten apparently healthy Jamunapari goat kids aged between 2-3 months with body weight of between 8-12 kg were randomly selected from Apollo College of Veterinary Medicine goat farm. All the kids were dewormed prior to the experiment using Albendazole @ 7.5 mg per kg body weight orally. The kids were housed in animal sheds and maintained under standard managemental conditions. All the kids were provided basal ration consisted of groundnut straw *ad libitum*, green lucerne restricted to 500 gm per head per day and a standard concentrate mixture having 12% DCP, 65% TDN with 2% mineral mixture and 1% salt. All the animals had *ad libitum* access to clean drinking water.

The kids were divided randomly into two groups each having five kids. Group I was kept as control and group II was given probiotic in the form of Biobloom (Sarabhai, Zydus) @ 5 gm per animal. Probiotic was mixed with molasses to increase acceptability. Control group was fed equal amount of molasses without any supplementation. Body weight at each interval and daily dry matter intake were recorded at 10, 20 and 30 day of study. The FCR was calculated at the end of the experiment based upon the

following formula:

$$\frac{\text{Feed consumed (kg)}}{\text{Gain in live weight (kg)}} : 1$$

It means, FCR is the amount of feed required to gain 1 kg live weight. The total dry matter intake on the daily basis was calculated as: groundnut straw (DM 90%), green lucerne (DM 20%), concentrate mixture (DM 90%). The data generated during the experiment was subjected to Student's t test to draw valid conclusion.

RESULTS AND DISCUSSION

There was no observable difference on feed consumption in both the groups. The mean ± S.E. of BWG of kids in control group were 0.92 ± 0.14, 1.14 ± 0.10 and 1.04 ± 0.004 kg at I, II and III intervals, respectively. The BWG in group II were 1.24 ±0.21, 1.48 ± 0.06 and 1.68 ± 0.22 kg at I, II and III intervals, respectively. The BWG in group II was significantly higher than the control group at all the three intervals ($P<0.05$). The difference in BWG in two groups was recorded highest at 30 days post supplementation (Table 1). FCR in control group during 30 days of experiment was 4.95±0.07 whereas in group I, it was 3.22±0.04. The FCR in the supplemented group was significantly ($P<0.05$) higher than the control group (Table 2). These results suggest higher feed conversion efficiency in the supplemented group as compared to non-supplemented group.

Table 1
Total body weight gain (kg) at different intervals

Group	Mean ± S.E. of total body weight gain (kg)		
	Ist interval	IInd interval	IIIrd interval
Control (I)	0.92 ± 0.14	1.14 ± 0.10	1.04 ± 0.04
Probiotic supplemented (II)	1.24 ± 0.21	1.48 ± 0.06	1.68 ± 0.22

Table 2
Total body weight gain (kg) and FCR during 30 days

Parameter	Group I	Group II
Body weight gain (kg)	3.10 ± 0.04	4.40 ± 0.05
Feed conversion ratio	4.95 ± 0.07 : 1	3.22 ± 0.04 : 1
Feed conversion efficiency	20.2%	31.05%

The higher BWG and improved FCR were recorded in group II after supplementation with probiotics. They reported that supplementation with probiotic cause better utilization of feed ingredients via increased microbial count and enhanced protozoal motility. Improved FCR in probiotic supplementation is in accordance with the results of Gupta and Gupta (2007) who reported improved feed utilization by ruminants when supplemented with Ecotas containing probiotic and other growth stimulants.

It can be concluded that given probiotic is quite effective in improving BWG and FCR. This effect may be due to better feed utilization due to phytase and other enzymes contributed by *Sacchromyces cervisiae* promoting digestion and suppression of pathogenic bacteria due to production of lactic acid and bacteriocins by *Lactobacillus sporogenes* and nucleotides that enhance immune response. Other contents of Biobloom like calcium, phosphorus, proteins, vitamins and carbohydrates also act as growth stimulants. Thus it can be used as feed supplement to improve growth and health in goat kids.

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