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EFFECT OF FEEDING TOTAL MIXED RATION (TMR) ON BLOOD PROFILES IN LACTATING COWS*

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ABSTRACT

Eighteen crossbred lactating cows were randomly selected for the experiment on the basis of live weight and milk yield. The animals were divided into three groups and allotted to three dietary treatments, viz.- T_0, T_1 and T_2. Animals in T_0 groups were fed by conventional method (concentrate and roughages fed separately) and feeding of animals in T_1 and T_2 were done in the form of total mixed ration, where the roughage: concentrate ratio was maintained at 40:60 and 50:50, respectively. The feeding trial was conducted for 120 days. Blood samples were analyzed at monthly interval. The concentration of blood glucose, total serum protein, BUN and serum creatinine did not differ significantly (P>0.05) among the experimental groups. Thus, feeding system did not have any significant impact on the constituents of blood.

Key words : Total mixed rations, Cows, Milk constituents, Blood profiles.

In developing countries like India, ruminants mostly sustain on crop residues and agro industrial by products which are poor in nutritive value and digestibility. Limitation of practical application of methods to improve their nutritive value in field condition has compelled nutritionists to improve feeding systems. TMR feeding system is one such method where roughages and concentrates are blended and mixed properly before feeding to the animals. Several workers had reported that feeding in the form of TMR has advantages over the conventional system in terms of digestibility and milk yield. Reports on the effect of feeding TMR on blood profiles were contradictory among several workers. Therefore the present study was undertaken to observe the effect of TMR on certain blood profiles.

Eighteen crossbred lactating cows were randomly selected on the basis of live weight and milk yield. The animals were divided into three groups and allotted to three dietary treatments, viz.- T_0, T_1 and T_2. Animals in T_0 groups were fed by conventional method (concentrate and roughages fed separately) and feeding of animals in T_1 and T_2 were done in the form of total mixed ration, where the roughage: concentrate ratio was maintained at 40:60 and 50:50, respectively. The feeding trial was conducted for 120 days.

Blood samples were collected at monthly interval from the jugular vein of the animals and were estimated using standard commercial diagnostic kits. The experimental data were analysed statistically[5].

The average milk yield and the blood constituent of the experimental animals has been presented in Table 1. The concentration of blood glucose (54.44±0.071, 53.96±0.39 and 54.03±0.27 mg/100 ml), total serum protein (6.95±0.02, 6.98±0.01 and 6.98±0.02 g/100ml), blood urea nitrogen (26.08±0.47, 25.01±0.56 and 26.16±0.46

mg/100 ml) and serum creatinine (1.66±0.06, 1.73±0.05 and 1.65±0.05 mg/100 ml) were comparable among the various dietary treatments, indicating that feeding either in the form of TMR or by conventional system had no effect the blood constituents. Similar findings were also reported by other workers[1,2,4].

It could be concluded that feeding in the form of TMR increases the daily milk yield over the conventional feeding system without affecting the blood constituents of the experimental animals.

Table 1. Average milk yield and blood profiles of experimental animals

Particulars	Treatments			
	T_0	T_1	T_2	Statistical analysis
Milk yield (litres)	4.01±0.10	4.39±0.07	4.31±0.12	NS
Blood profiles:				
Blood glucose (mg/100ml)	54.29±0.67	53.84±0.39	54.03±0.27	NS
Total serum protein (g/100 ml)	6.95±0.02	6.98±0.01	6.98±0.02	NS
Blood urea nitrogen (mg/100 ml)	26.08±0.47	25.01±0.56	26.16±0.46	NS
Serum creatinine (mg/100 ml)	1.66±0.06	1.73±0.05	1.65±0.05	NS

NS= Non significant (P>0.05)

REFERENCES

1. Hundal, J.S., Gupta, R.P., Wadhwa, M. and Bakshi, M.P.S. 2004. Effect of feeding total mixed ration on the productive performance of dairy cattle. *Animal Nutrition and Feed Technology*, 4:179-186.
2. Kim, S.H., Alam, M.J., Gu, M.J., Park, K.W., Jeon C.O.Ha, Jong K, Cho, K.K. and Lee, S.S. 2012. Effect of total mixed ration with fermented feed om ruminal *in vitro* fermentation, growth performance and blood characteristics of Hanwoo steers. *Asian-Aust. J. Anim. Sci.* 25(2): 213 – 223.
3. Pandya, P.R. Patel, P.R.; Gupta, R.S.; Patel,D.C; Pande, M.B. and Desai, M.C. 2005. Effect of wheat straw based total mixed ration with *Prosopis juliflora* pods (Mesquite pods) on performance of lactating cows. *International J. of cow science*, 1(1): 66-72.
4. Polat, U., Gencoglu, H. and Turkmen, I.I. 2009. The effects of partial replacement of corn silage on biochemical blood parameters in lactating primiparous dairy cows. *Veterinarni Medicina*, 53(9): 407-411.
5. Snedecor, G.W. and Cochran, W.G. 1994. Statistical Methods, 8th ed. Oxford and IBH Publishing Company, Kolkata, India.

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