

**EFFECT OF FEEDING BYPASS PROTEIN ON BLOOD  
BIOCHEMICAL PROFILE OF BARBARI KIDS**

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**ABSTRACT**

The objective of this study was to evaluate the effect of protected ground nut cake (GNC) on blood biochemical profile of growing goats. Results of study indicated that blood biochemical parameters comprising total protein, albumin and globulin were significantly ( $P < 0.05$ ) higher in kids fed on formaldehyde treated GNC based ration, but average blood urea nitrogen concentration significantly ( $P < 0.01$ ) decreased in kids fed on formaldehyde treated GNC based ration.

**KEY WORDS:** Formaldehyde treated GNC, blood biochemical profile, barbari kids.

**INTRODUCTION**

Bypass protein technology involves feed management through passive rumen manipulation by which the dietary protein, especially from highly degradable oil seed cakes in rumen are protected from proteolysis, allowing these proteins to bypass rumen, get digested and then absorbed as amino acids from the lower tract. Fast growing goats have protein requirements that exceed the amount provided by bacteria (ARC, 1998). Groundnut cake is one of the cheaper and most commonly used protein supplements for livestock in India. However, high rumen degradability of groundnut cake reduces its nutritive value. Formaldehyde treatment of cake is commonly used and cheaper method for protection of protein from microbial degradation and supplying better amino acid profile at post ruminal tract. Therefore, the present study was planned to evaluate the effect of protected ground nut cake (GNC) on blood biochemical profile of growing goats.

**MATERIALS AND METHODS**

Fourteen healthy male goat kids were randomly divided into two groups of 07 kids each and maintained on respective isonitrogenous and isocaloric rations. The entire experimental trial was carried out as described by Singh *et al.*, (2104 ). Blood samples (5 ml) were collected from each kid at the start and end of the experiment, and then pooled serum samples were analysed for total protein, albumin globulin and BUN using serum biochemical analyser with their respective kit. The data was analysed using student unpaired and paired t-test as per Snedecor and Cochran (1995).

**RESULTS AND DISCUSSION**

In the present study serum biochemical parameters comprising total protein, albumin, globulin and blood urea nitrogen were evaluated (Table 1).

No significant difference was observed in the serum total protein, albumin and globulin concentration at day 0 between kids of experimental groups. However, significantly ( $p < 0.01$ ) higher serum total protein, albumin and globulin concentration was observed in kids fed on bypass protein based ration as compared to kids that were not fed bypass protein based ration at termination of study (day 90). Our observations are in agreement with several workers (Abdel-Ghani *et al.*, 2011; Shamooun *et al.* 2009 and El-Shabrawy, 2006) . A positive correlation between dietary protein and plasma protein concentrations were also reported by Davies *et al.* (2007) and Mondal and Chopra (2008)

where they found that the increase in digestibility of CP could be attributed to the increase in serum total protein and its fractions. Moreover, protection of dietary proteins led to lower rumen degradability and higher concentrations of proteins escaping to the abomasum and small intestine by gastric and intestinal juices and simultaneously, found higher absorption of dietary amino acids, which lead to high level of plasma protein. In the present study no significant difference was observed in the blood urea nitrogen concentration at day 0 between kids of experimental groups. However, significant (p<0.01) decrease in blood urea nitrogen concentration was observed in kids fed bypass protein based ration in comparison to control group at termination of study (day 90). These differences may be due the reduction of ammonia concentration and the decreased level of ammonia in rumen of kids fed protected protein was reflected in lower level of urea in their blood. El- Shabrawy (2006) found lower (p<0.05) values of urea-N in plasma of goats receiving formaldehyde soybean meal and heat soybean seed diets than those receiving untreated soybean meal diets. However, Hassan and Saeed (2012) found a non-significant effect of protected dietary protein on the blood level of urea-N. It is concluded that incorporation of 2% formaldehyde treated groundnut cake in the diet of growing kids resulted in significantly (p<0.01) higher serum total protein, albumin and globulin concentration, but significantly (P<0.01) decreased average blood urea nitrogen concentration.

**REFERENCES :**

Abdel-Ghani, A.A., Solouma, G.M.A., AbdElmoty, A.K.I., Kassab, A.Y. and Soliman, E.B. (2011). J. Anim. Sci., **1(2)**: 24-32.

ARC (1998). Nutrient requirements of ruminant's live weight supplement, 5th Edition, Technical Bureaus, England.

Davis J.J., T. Sahlu, R. Puchala, M.J. Herselman, S.P. Hart, E.N. Escobar, S.W. Coleman, McCann, J.P. and A.L. Goetsch, (2007). Journal of Animal Science, **77**: 1029-1036.

El-Shabrawy, H.M. (2006). Egyptian J. Sheep, Goat and Desert Anim. Sci., **1(1)**: 213-232.

Hassan, S.A. and A.A. Saeed (2012). Journal of Natural Science **15(3)** : 36-45

**Table 1. Mean values of Blood /serum Biochemical parameters in kids at Day 0 and Day 90**

Parameters	Treatments	T1	T2
Protein	Day 0	6.11±0.19	
	Day 90	7.03±0.19	
Albumin	Day 0	3.45±0.19	
	Day 90	3.96±0.15	
Blood Urea Nitrogen	Day 0	13.84±0.18	
	Day 90	13.69±0.12	
Globulin	Day 0	2.66±0.07	
	Day 90	3.07±0.12	

\* Significant (p<0.05) \*\* Significant (p<0.01)

Mondal, G. and Chopra, R.C. (2008).Indian J. Anim. Nutr.,**25(2)**: 125-128.

Shamoon, S.A., Saleh, M.N. and Abbo, N.Y. (2009).Iraqi J. Vet. Sci.,**23(2)**: 169-173.

Singh, V.P., Nayak, S., Baghel, R.P.S., Gupta, R.S., Patil, A.K. and Khare, A.K. (2014) Indian J. Field Vet. **10(1)**, 41-44.

Snedecor, G.W. and Cochran, G.S. (1995).Statistical Methods. 8 ed. The Iowa State University Press, Ames, Iowa, USA.

