

Utilization of *Prosopis juliflora* Pods in the Ration of Kankrej Bullocks for Maintenance

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ABSTRACTS

An experiment was conducted to find out the feasibility of utilising *Prosopis juliflora* pods in maintenance ration for bullocks. A 4x4 latin square design with 6 weeks period was followed. The four treatments consisted of 0 (control), 15, 30 and 45 per cent level of *Prosopis juliflora* pods in concentrate mixture and were designated as treatment T₁, T₂, T₃, and T₄ respectively. Each animal was fed daily 2 kg of hybrid napier, mature pasture hay ad-lib and weighed quantities of concentrate mixture. The bullocks were fed as per Sen and Ray standard (1971) to meet the DCP requirement.

Studies revealed that even at 45 per cent of *Prosopis juliflora* pods feeding there were no adverse effects, on the dry matter intake and digestibility of nutrients. Nitrogen and calcium balances were positive. However, at higher level of *Prosopis juliflora* pods feeding (T₄) phosphorus balance was negative indicating thereby that it should be fed with some phosphorus rich concentrate or mineral mixture containing phosphorus.

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INTRODUCTION

Recently attention has been focused on the possibility of utilizing *Prosopis juliflora* pods as cattle feed. Talpada *et al.* (1979) have found out nutritive value of *Prosopis juliflora* pods. However, very little work has been done to find out its utility as one of the ingredients in cattle feeds. Therefore, an experiment was conducted to find out the feasibility of using *Prosopis juliflora* pods in the concentrate mixture of bullocks.

MATERIALS AND METHODS

A 4x4 latin square design with six weeks period was followed. Four adult Kankrej bullocks with average body weight of 530 kg were used as experimental animals. The four treatments consisted of 0, 15, 30 and 45 per cent level of *Prosopis juliflora* pods in

concentrate mixture (Table 1) and were designated as T₁, T₂, T₃ and T₄ respectively. The bullocks were fed 2 kg of hybrid napier and mature grass hay ad-lib in addition to concentrate mixture. The DCP requirements were met as per Sen and Ray (1971) feeding standard for maintenance. Weekly body weights and daily feed consumptions were recorded. Metabolic trials were conducted at the end of each period.

The samples of feeds, feces and urine were analysed according to AOAC (1970) methods. Statistical analysis was carried out as per the method given by Snedecor and Cochran (1968).

RESULTS AND DISCUSSION

The chemical composition of feeds and fodders used in the experiment are given in Table 2.

It is revealed that there was not much variation in chemical composi-

TABLE 1

Proportion (%) of ingredients in concentrate mixtures.

Ingredients	Concentrate mixture			
	T_1	T_2	T_3	T_4
Groundnut cake	5	10	15	15
Maize gluten	23	20	5	2
Cotton seed cake	7	5	5	8
Wheat bran	16	5	7	—
Rice polish	27	25	18	10
Molasses	10	10	10	10
Tapioca waste	9	7	7	7
<i>Prosopis juliflora</i> (pods)	0	15	30	45
Bone meal	1	1	1	1
Salt	2	2	2	2
D.C.P. (Cal.)	11.6	12.0	11.8	11.8
T.D.N. (Cal.)	63.5	63.4	63.5	63.6

TABLE 2

Chemical composition of feeds and fodders (on% D.M.basis).

Feed Constituents	Concentrate mixtures				Hybrid napier (green)	Mature grass
	T_1	T_2	T_3	T_4		
C.Protein	18.43	19.07	18.96	18.27	8.37	2.09
E.Ext.	5.10	5.06	4.73	4.05	3.78	2.17
C.Fibre	10.14	11.13	11.33	15.71	28.56	38.90
NFE	56.13	54.54	54.50	52.06	45.04	48.37
Ash	10.20	10.20	10.48	9.91	14.25	8.47
Silica	3.30	2.81	2.76	2.09	5.67	6.15
P	0.78	0.70	0.65	0.53	0.43	0.036
Ca	0.55	0.54	0.64	0.67	0.43	0.40

tion of the feeds and fodders analysed during different periods of experimentation.

Effect on dry matter intake:

The per cent DM intake, intake in g/kg $W^{0.75}$, digestibility of rations and balances of nitrogen, phosphorus and calcium are presented in Table 3.

The dry matter intake ranged from 1.37 to 1.67 kg per 100 kg body weight and the animals consumed on an average 1.52 kg dry matter containing 45% *Prosopis juliflora* pods (T_4). The effect

of treatment was non-significant. Thus the pods are palatable to the animals.

Digestibility of proximate nutrients:

The data on digestibility co-efficients (Table-3) of the rations revealed that the digestibility co-efficient of crude protein were slightly higher under T_3 . However, the differences were non-significant. The digestibilities of ether extract, crude fibre, NFE and organic matter were not affected due to various levels of *Prosopis juliflora* pods feeding in concentrate mixture.

TABLE 3

Effect of feeding *Prosopis juliflora* pods at different levels on average dry matter intake, digestibility and balances of nutrients.

Constituents	Treatments				Treat'F'
	T ₁	T ₂	T ₃	T ₄	
D.M. intake (kg/100 kg B.wt.)	1.51	1.54	1.54	1.52	0.88 NS
D.M.intake 0.75 (g/day/wg w)	73.5	74.8	74.9	74.3	0.58 NS
Digestibility coefficients (whole ration)					
C. Protein	51.96	52.67	54.13	53.13	0.39 NS
E.Ext.	61.29	61.63	61.65	60.07	0.09 NS
C.Fibre	68.25	70.59	67.81	71.38	0.99 NS
N.F.E.	52.93	51.95	51.13	48.75	2.47 NS
O.Matter	58.02	58.44	57.12	57.11	0.36 NS
Balances (g/day/animal)					
Nitrogen	+16.94	+18.51	+19.22	+14.15	2.18 NS
Phosphorus	+ 2.57	+1.60	+1.70	- 0.36	0.73 NS
Calcium	+ 6.10	+3.87	+4.25	+ 4.93	0.26 NS

NS=Non significant

Balances of nitrogen and minerals:

The balance data (Table-3) revealed that all the experimental animals showed positive balances for nitrogen (+17.21) and calcium (+4.79) except for phosphorus in T₄ (-0.36) indicating thereby that while using *Prosopis juliflora* pods as cattle feeds it should be fed with some phosphorus rich concentrate ingredients or supplement.

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