

Short Communication

Chemical Composition and Nutritive Value of *Tumba* Cake

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Tumba (*Citrullus colocynthis*) is indigenous to western India and belongs to the family cucurbitaceae. After oil is extracted from its seeds the residue, known as *tumba* cake, may be used as a cheap source of protein to replace expensive conventional cakes. Little study on feeding *tumba* cake seem to be done earlier. However, Mathur *et al.* (1989, 1991) reported the safe use of *tumba* cake up to 25% in concentrate ration of milking cows. Therefore, considering its abundance in the area and its high protein level the nutritive value of *tumba* cake on growing buffalo calves was studied.

Four buffalo calves of comparable age group (less than one year, housed in an animal shed) were given prophylactic dose of an anthelmintic, before initiation of the experiment. The feeding trials included wheat straw alone and wheat straw mixed with *tumba* cake to determine the nutritive value of *tumba* cake by "difference method". In the first trial, digestibility coefficient of nutrients of basal roughage, i.e., wheat straw was determined and in the second trial, digestibility was evaluated by taking wheat straw as a basal feed with soaked and drained *tumba* cake as concentrate feed. The alkaloid, cucurbitin which imparts bitterness to *tumba* cake, was removed by soaking and drainage of the cake. Each animal was daily given a weighed quantity

of feed and faeces and urine voided were collected.

Chemical constituents of feeds, faeces and urine were estimated following the method of Talpatra *et al.* (1940) and A.O.A.C. (1984). The results showed that *tumba* cake contained 93% dry matter (DM), 18.65% crude protein (CP), 7.25% ether extract (EE), 52.0% crude fiber (CF), 10.10% nitrogen free extract (NFE) and 12.0% total ash (TA). Minerals, viz., calcium and phosphorus were also analyzed and were found to be 1.28% and 0.48%, respectively.

Tumba cake contained appreciable amount of crude protein, i.e., 18.65% comparable to commonly available conventional cakes, viz., cotton seed cake, etc. Beside the nutrient composition, digestibility could be an important index in assessing the nutritional worth of the feed. The results of conventional digestion trials, as depicted in Table 1, clearly support the usefulness of *tumba* cake. *Tumba* cake contained 10.35% digestible crude protein (DCP) and 55.50% total digestible nutrient (TDN). The DCP and TDN amount of *tumba* cake is in proximity as in other non-conventional cakes like, Mahua cake, Kokam cake.

Moreover, regional availability and economics firmly support the use of *tumba* cake as one of the ingredients in the ration,

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Table 1. Nutritive value of basal feed and tumba cake

	Ingredient	DM	CP	CT	EE	NFE	TDN	NR	SE
Mean digestibility	Wheat straw	50.30	56.42	55.50	48.80	50.3-	-	-	-
Coefficients	Tumba cake	43.96	54.60	55.14	65.87	60.99	-	-	-
Digestible	Wheat straw	-	0.87	22.60	0.21	22.96	46.93	1:52.60	46.22
Nutrients	Tumba cake	-	10.35	30.22	4.15	5.62	55.50	1:4.36	53.90

so as to increase the supply of relatively cheaper protein sources to animals.

References

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