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COMPARATIVE NUTRITIVE VALUE OF TREATED AND UNTREATED MUSTARD OIL CAKE IN RABBIT FEEDING

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ABSTRACT

An experiment involving 12 growing rabbits, was conducted to compare the nutritive value of treated and untreated mustard oil cake. The oil cake was either treated with steam alone or steam treatment was followed by salt treatment or salt treatment was followed by steam treatment. The data on growth, feed consumption and feed efficiency, collected during a period of 21 days, did not reveal significant differences.

INTRODUCTION

Mustard and rape seed (Brasica family) are quite rich sources of vegetable oils and are abundantly grown in Pakistan, mainly for vegetable/edible oil production. Cakes which are left over after extraction of oil are ured in animal feeding, particularly ruminants. These oil seed cakes contain inhibiting factors like erucic acid and glucosinolates which have adverse effect on the growth of both ruminants and non-ruminants. It is believed that the activity of the inhibiting factors may be reduced through chemical and heat treatments, resulting in improvement in their nutritive value.

Olmu *et al.* (1974) observed that treatment of rape seed oil meal with hot water and autoclaving improved the quality of rations fed to chicken. Parsada and Rao (1978) also studied the feed efficiency of treated (using hot and cold water extraction) rape seed meal and observed that treated meal could replace groundnut meal. Lebas and Colin (1978) fed rabbits diets of oats, wheat and wheat bran and toasted rape seed oil meal, sunflower oil meal and observed no difference in daily gain, feed conversion and in weight of thyroid or liver. Clandinin *et al.* (1977) found that inclusion of rape seed oil meal (with low level of glucosinolates) in the rations of poultry even upto 10% level resulted in satisfactory results. Thus, the effect of treated and untreated

mustard oil cake on the growth and feed efficiency of growing rabbits was studied.

MATERIALS AND METHODS

The study involved 12 growing rabbits of almost the same liveweight. Four rations (I, II, III, and IV) were tested in the study. The rations were randomly allotted to the experimental animals (rabbits) in such a way that there were three animals on each ration. The composition of the rations is shown in Table 1. Feed and water were offered to the experimental animals *ad lib.* The experiment lasted for 21 days. Weekly weight gain and daily intake of feed were recorded. The data on growth rate, feed intake and feed efficiency were analysed statistically using analysis of variance technique (Steel and Torrie, 1980).

Table 1. *Percentage composition of the experimental rations containing differently processed mustard oil cake*

Ingredients	Rations			
	I	II	III	IV
Maize grain (ground)	25	25	25	25
Maize gluten meal (30%)	14	14	14	14
Rice polishings	8	8	8	8
Molasses (cane)	7	7	7	7
Mustard oil cake	10a	10b	10c	10d
Lucerne hay	35	35	35	35
Bone meal	1	1	1	1

a : Raw mustard oil cake; b steam-treated mustard oil cake;
c : steam (followed by salt) -treated mustared oil cake;
d : salt (followed by steam) -treated mustard oil cake.

RESULTS AND DISCUSSION

The average weight gain, feed consumption and feed efficiency data have been summarised in Table 2.

The average weight gain was observed to be 280.4, 116.9, 199.4 and 204.3 g in rabbits fed rations I, II, III and IV, respectively. The average feed consump-

tion of rations I, II, III and IV was 1312.5, 1628.5, 1468.3 and 1324.3 g, respectively. The feed efficiency values were 4.68, 13.93, 7.36 and 4.48, respectively. Analysis of the data on weight gain, feed consumption and feed efficiency showed non-significant differences in all the parameters.

The results of the present study are contrary to those of the previous workers (Olmu *et al*, 1974; Parsada and Rao, 1978). This might be due to difference in the varieties of mustard oil cake, used and method of oil extraction. The oil is extracted through expellor where lot of heat is generated which might have inactivated the inhibiting factors (glucosinolates and erucic acid).

Table 2. *Average weight gain, feed consumption and feed efficiency of rabbits feed different rations*

Particulars	Rations			
	I	II	III	IV
Days on experiment	21	21	21	21
Av. initial weight (g)	671.6	685.8	686.6	650.0
Av. final weight (g)	952.0	802.5	886 0	864.3
	NS	NS	NS	NS
Av. total weight gain (g)	280.4	116.9	199.4	204.3
	NS	NS	NS	NS
Av. daily weight gain (g)	13.35	5.57	9.50	9.73
	NS	NS	NS	NS
Av. total feed consumed (g)	1312.5	1628.5	1468.3	1324.3
	NS	NS	NS	NS
Feed efficiency	4.68	13.93	7.36	4.48

NS = Non-significant.

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