

Effect of Feeding Herbal Medicinal Residue on the Performance, Slaughter-Carcass Traits, Meat Quality and Fatty Acid Composition of Goats

George Dominic*, K.S. Prasad, N.M. Soren, S.B.N. Rao and Partha Sarathi Swain

Animal Nutrition Division, ICAR-National Institute of Animal Nutrition and Physiology, Bangalore-560030, India



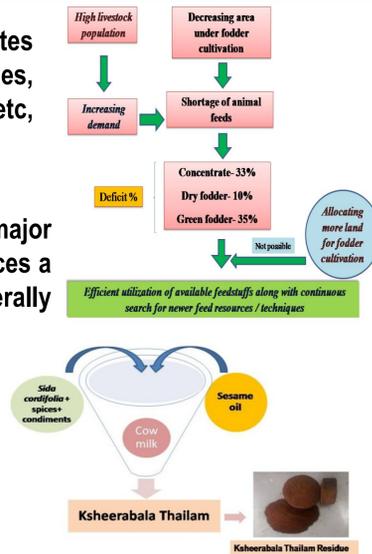
Summary

We evaluated the effect of feeding Ksheerabala thailam residue (KTR), a herbal medicinal residue, on the performance, slaughter-carcass traits and meat quality of goats. Eighteen male kids were divided into three equal groups in a completely randomized design and allotted to three dietary treatments. The kids of the control group (K0) were fed a concentrate mixture (CM) containing soybean meal (SBM) and groundnut cake (GNC) as the main source of protein. In the treatment groups, the SBM and GNC protein of the control CM were replaced by KTR protein either at 20 (K20) or 40 (K40) percent in the treatment CM. Finger millet straw was offered as the sole roughage. There were no significant differences ($p > 0.05$) in the growth parameters, nutrient intake and digestibility of major nutrients. The slaughter and carcass characteristics as well as proximate composition of *longissimus dorsi* muscle were similar ($p > 0.05$) among treatments. The fatty acid profile of the *longissimus dorsi* muscle showed that feeding of KTR had significantly increased the polyunsaturated fatty acids (PUFA) content of the muscle compared to K0. The feed cost per kilogram of weight gain was reduced by Rs 21 in the K40 treatment.

Introduction

➤ Ayurvedic medicinal residues (AMR) are wastes obtained after preparation of ayurvedic medicines, mainly comprised of herbs, oils, seeds, leaves etc, are thrown or disposed off

➤ The Ksheerabala thailam is one of the major ayurvedic medicine prepared in India and produces a large amount of residue which are generally disposed or not utilized economically.



Objectives

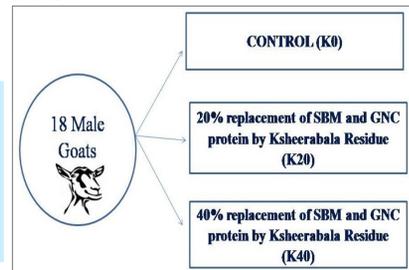
- To assess the nutrient composition in Ksheerabala Thailam Residue, a herbal medicinal residue
- To study the effect of dietary incorporation of KTR on performance, slaughter-carcass traits and meat quality of goats

Material and Methods

Sample Collection: The Ksheerabala Thailam Residue (KTR) was collected from Aryavaidasala, Kottackal, Kerala

Experimental Design:

- Inclusion levels were selected based on IVGPT results
- Finger Millet straw as sole roughage source
- Feeding trial period-150days
- Digestibility trial for a period of 7days towards the end of feeding trial



Materials and Methods

Chemical Analysis: ➤ The samples were analyzed for chemical composition (AOAC, 2000) and fibre fractions (Van Soest *et al.*, 1991).

Slaughter/Carcass Characteristics ➤ The carcass and meat quality attributes were studied by slaughtering the animals in all treatments after 150 days of feeding trial

➤ The meat fatty acids were determined as per method given by O'Fallon *et al.* (2007)



Statistical Analysis

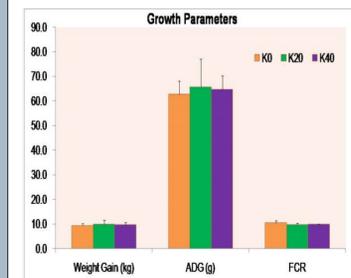
➤ Data were analyzed statically following one way ANOVA using SPSS version 20.0

Results

Ingredient Composition (%) and Chemical composition (%DM) of Concentrate mixture

Ingredients	K0	K20	K40
Ingredient Composition (%)			
Maize	38	30.4	22.4
Wheat bran	25	28	31.5
Soya bean meal	22	17.6	13.2
Groundnut cake	12	9.6	7.2
KTR	0	11.4	22.7
Mineral mixture	2	2	2
Salt	1	1	1
Chemical Composition (%)			
DM	90.68	90.83	91.19
TA	5.94	7.55	7.01
CP	22.81	22.76	22.51
EE	2.46	3.76	4.50
NDF	31.05	26.10	30.48
ADF	9.70	10.81	12.50
Calcium	0.68	0.87	0.93
Phosphorus	0.72	0.86	0.90
SFA (g/100g fatty acids)	39.73	34.83	34.10
MUFA(g/100g fatty acids)	35.79	35.86	34.17
PUFA(g/100g fatty acids)	24.49	29.30	31.73

Effect on Growth Parameters

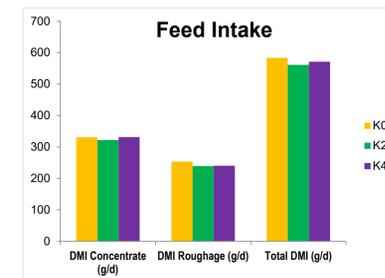


➤ Growth parameters were non significant
➤ FCR was numerically lower in K20 and K40

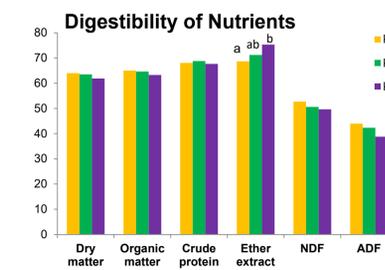
Effect on Nutrient Digestibility (%)

The EE digestibility was significantly higher ($P < 0.05$) in K40 compared to K0 whereas K20 were similar to K0 and K40

Effect on Nutrient Intake (g/day)

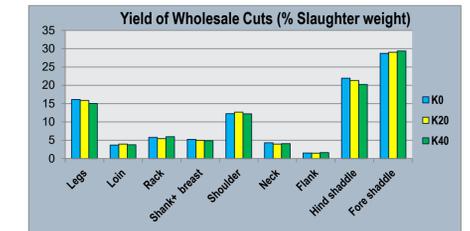
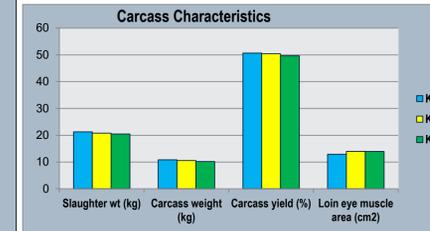


❖ Nutrient intake were similar among the treatments



Results

Slaughter/Carcass Characteristics

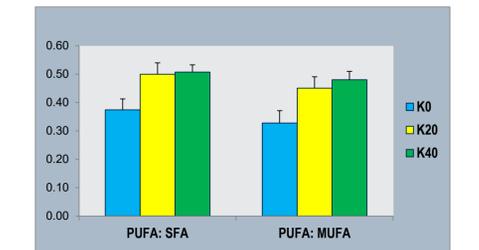
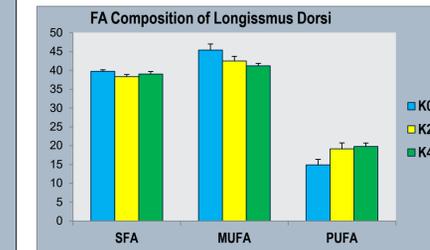


➤ The slaughter characteristics, yield of wholesale cuts, edible and inedible organs were similar ($p > 0.05$) among treatments.

Proximate Composition of Longissimus Muscle

Parameter	K0	K20	K40
Moisture %	73.04	71.86	73.81
Protein, %	22.53	23.28	22.79
Fat, %	2.32	2.05	1.86
Ash, %	1.21	1.33	1.17

FA Composition of Longissimus Dorsi Muscle



The total PUFA level, PUFA: SFA as well as PUFA: MUFA levels were significantly higher ($p < 0.05$) in the Ksheerabala thailam residue fed groups

Effect on Feed Cost

- Reduction in concentrate mixture cost by 17.13%
- Reduction in cost per kg weight gain by 15.01%

Parameter	K0	K20	K40
Cost of concentrate (Rs/kg)	20.02	18.30	16.59
Cost / kg weight gain (Rs)	146.00	127.50	125.00
Profit per kg weight gain (Rs)	-	18.50	21.00
% reduction in cost per weight gain	-	12.96	15.01
Percentage cost reduction for concentrate mixture, %	-	8.59	17.13

Conclusion

➤ Protein from SBM and GNC can be replaced by KTR up to 40% in the concentrate mixture for feeding to goat without affecting performance and slaughter characteristics

➤ Inclusion of KTR improves meat quality in terms of PUFA and reduces feed cost and cost per kg weight gain

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