

## **Effect of Fenugreek (*Trigonella foenum-graecum* L.) Seed On Feed Intake And Water Intake Of Konkan Kanyalgoats**

### **ABSTRACT**

Eighteen Konkan Kanyal kids (3 months old) were divided into six treatment groups and fed fenugreek seeds (FS) viz., T<sub>0</sub>- (Control) Basal ration(Soybean straw 40% + Green maize 20% +concentrate mixture 40%), T<sub>1</sub>- Basal ration +0.75 % FS , T<sub>2</sub>- Basal ration +1.5 % FS, T<sub>3</sub>- Basal ration + 2. % FS, T<sub>4</sub>- Basal ration + % FS and T<sub>5</sub>- Basal ration + 3.75 % FS. The average feed intake(g/d) was higher in T<sub>5</sub>(1216.10) than T<sub>0</sub> (1095.66), T<sub>1</sub> (1119.60), T<sub>2</sub> (1152.20), T<sub>3</sub>(1177.13), T<sub>4</sub>(1203.16). The average water intake (ml/d) of kids was 904.33 in T<sub>0</sub>, 911.66 in T<sub>1</sub>, 913.66 in T<sub>2</sub>, 920.33 in T<sub>3</sub>, 925.66 in T<sub>4</sub> and 930.33in T<sub>5</sub>.Therefore it is concluded that addition of 3.75 per cent fenugreek seed with basal ration had significant (P<0.05) incremental effect on the feed intake (1216.10 g/day) and, water intake (930.33 ml/day).

**Key words:** Konkan Kanyal goats, Fenugreek seeds, Feed intake, Water Intake

### **INTRODUCTION**

A multipurpose animal, goats are important to the economy and nourishment of the nation's landless, small-scale and marginal farmers. A sizable portion of the population in rural areas has engaged in the business of raising goats. With the growing demand for organic food and the ban on the use of some antibiotics, as well as concerns about hazardous residual effects and cost effectiveness in livestock feed, finding alternative feed additives has become a need. Herbal feed additives may affect feeding patterns, promote the growth of beneficial microorganisms in the rumen, or stimulate the secretion of various digestive enzymes, which may improve nutrient utilisation efficiency or stimulate the milk secreting tissue in the mammary glands, resulting in improved dairy animal productivity and reproduction (Bakshi and Wadhwa, 2000). A medicinal herb may have antibacterial, immunostimulant, coccidiostatic, anthelmintic, antiviral or antioxidative effects (Uegakiet *al.*, 2001). Fenugreek has nutritional as well as therapeutic properties. The polysaccharide galactomannan is abundant in fenugreek seeds. Saponins, which are found in 4-8 percent of fenugreek, have health-promoting effects. So, with the aforementioned in mind, the current investigation has been presented to investigate the influence

of fenugreek seed on Konkan Kanyal kids feed intake and water intake and to determine the optimum degree of fenugreek seed inclusion as a feed supplement.

## **MATERIALS AND METHODS**

The study was conducted from 16 February to 16 May 2022. Green maize was made available from fodder unit of instructional livestock farm of Department of Animal Husbandry and Dairy Science. The ingredients for concentrate mixture include groundnut cake, maize crumbles, mineral mixture, salt, fenugreek seed and Soybean straw were purchased from Dapoli market. Twenty Konkan Kanyal kids (3 months old) average body weight were used for 90 days feeding trial. Kids were assigned to Six groups as T<sub>0</sub>- (Control) Basal ration (Soybean straw 40% + Green maize 20% + concentrate mixture 40%), T<sub>1</sub>- Basal ration + 0.75 % FS, T<sub>2</sub>- Basal ration + 1.5 % FS, T<sub>3</sub>- Basal ration + 2. % FS, T<sub>4</sub>- Basal ration + % FS and T<sub>5</sub>- Basal ration + 3.75 % FS. The chemical composition of experimental diet was analysed as per AOAC (2020). Kids were maintained in groups as per treatment. Feed was offered daily in the morning and evening hours and recorded manually. Daily water intake (ml) daily feed consumption (kg) of kids was recorded during experimental period at 8.00 am, as offered subtracted from remaining in 24 hrs. Means were separated using least significant difference (LSD) test of the same package. Thus experimental data was collected, compiled and analyzed by Randomized Block Design (Snedecor and Cochran, 1994).

## **RESULTS AND DISCUSSION**

### **Feed intake**

Average feed intake of kids was significantly ( $P < 0.05$ ) higher in fenugreek seed supplemented groups than control (Table 1). The results in present study are comparable with Balgees *et al.* (2013) who studied effect of fenugreek seeds supplementation on feed intake of Nubian goats. They recorded feed intake g/day as 546.30 (Control), 1083.3 (Fenugreek seed 5%), 1231.8 (Fenugreek seed 10%), 1318.3 (Fenugreek seed 15%). Al-Sherwany (2015) also reported that supplementation of fenugreek seeds in Hamdani ewes resulted in significantly ( $P < 0.05$ ) higher daily feed intake. It is observed from the result that feed intake increased as per increase in addition of fenugreek seed which may be firstly due to the saponins content in fenugreek seeds, which increased feed intake (Ismail 2000). Secondly, the boosting effect of fenugreek seeds supplementation might also be attributed to the fact that fenugreek seeds increase the appetite for

food (Borcaet *al.*, 2000). Although Abo El-Nor (2007) suggested that fenugreek seeds may be have an effect on hypothalamus gland to stimulate hungriness centre in the brain and increase the desire for eating.

### **Water Intake**

The average water intake of kids significantly ( $P < 0.05$ ) higher in fenugreek seed supplemented groups than control (Table 2). The results of present study are having higher values for water intake ml/day as compared to results obtained by Kokani(2019) who investigated on nutritional benefit and economic value of feeding hydroponically grown horse gram fodder for Konkan Kanyal goats and observed that 0.65 lit for treatment group T<sub>1</sub>, 0.56 lit for treatment group T<sub>2</sub>, 0.55 lit for treatment group T<sub>3</sub>, 0.57 lit for treatment group T<sub>4</sub>, respectively and findings of Weldegerima (2015) who investigated on nutritional benefit and economic value of feeding hydroponically grown maize and barley fodder for Konkan Kanyal goats and observed water intake 401.86, 323.00, 564.70, 440.65, 494.01 and 496.89 ml/day for T<sub>0</sub>, T<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub>, T<sub>4</sub> and T<sub>5</sub>, respectively. The results of this findings indicated significant difference in water intake.

### **CONCLUSIONS**

Contemplating the findings of present study, it could be concluded that addition of fenugreek seeds at 3.75 per cent level as feed additive in complete feed could be a viable proposition to improve the feed and water intake in goats. Further, supplementation of fenugreek seeds as feed additive could be a practically viable strategy that can be adopted to improve performance of goats and to have sustainable goat production.

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## **TABLES**

**Table 1: Average daily feed intake during experimental period (DM basis)**

<b>Treatments</b>	<b>Average feed</b>	<b>Average feed</b>	<b>Average feed</b>	<b>Total feed</b>
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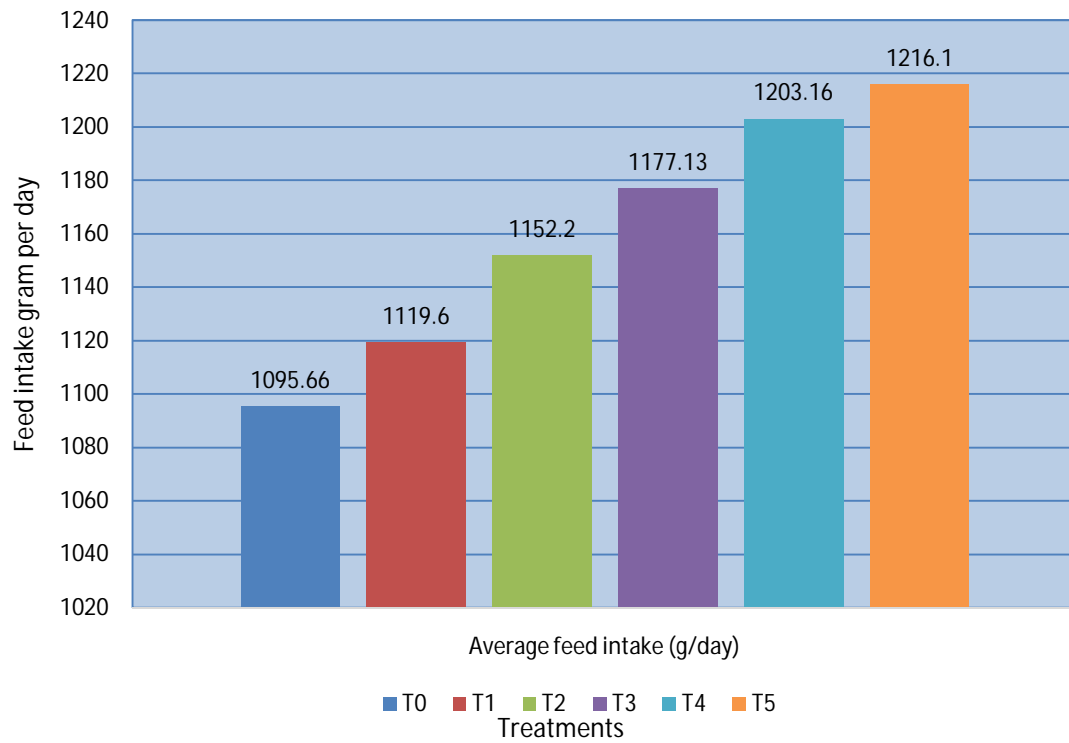
	<b>offered (g/day)</b>	<b>leftover (g/day)</b>	<b>intake (g/day)</b>	<b>intake for 90 days (kg)</b>
T <sub>0</sub>	1250	154.34 <sup>a</sup>	1095.66 <sup>f</sup>	98.61
T <sub>1</sub>	1252.6	133.00 <sup>b</sup>	1119.60 <sup>e</sup>	100.76
T <sub>2</sub>	1255.2	103.00 <sup>c</sup>	1152.20 <sup>d</sup>	103.70
T <sub>3</sub>	1257.8	80.67 <sup>d</sup>	1177.13 <sup>c</sup>	105.94
T <sub>4</sub>	1260.5	57.34 <sup>e</sup>	1203.16 <sup>b</sup>	108.29
T <sub>5</sub>	1263.1	47.00 <sup>e</sup>	1216.10 <sup>a</sup>	109.45
SE±	-----	3.85	3.85	-----
CD (5%)	-----	12.17	12.15	-----

Figures having different superscripts differed from each other

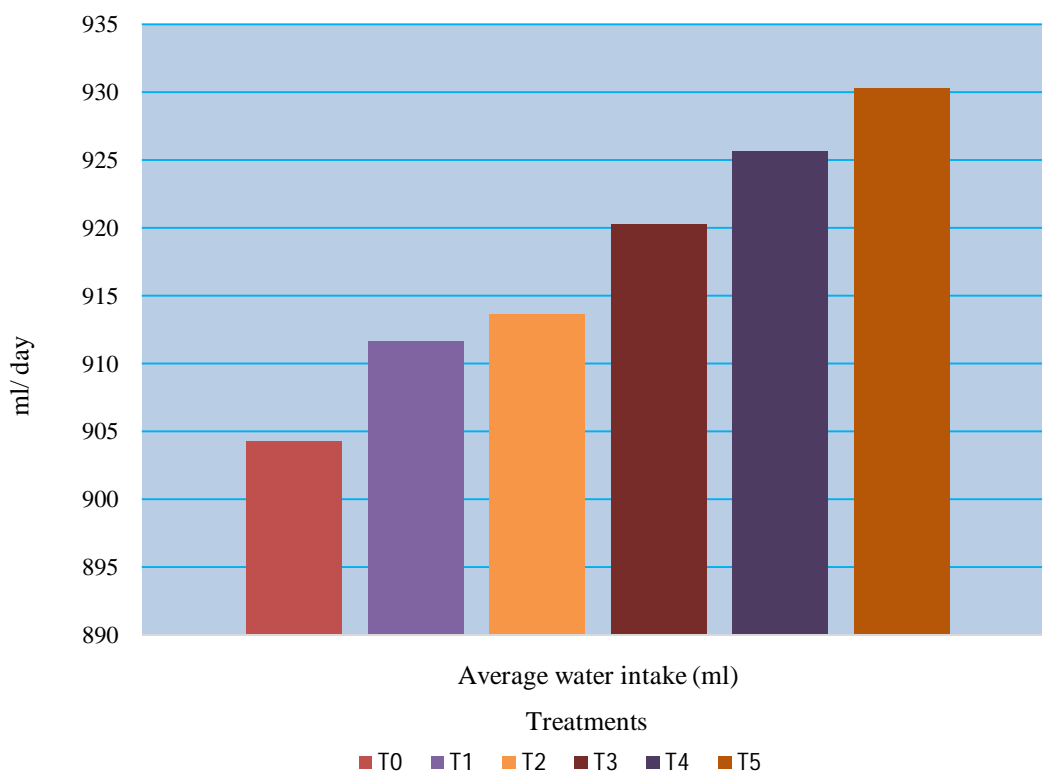
**Table 2: Average daily water intake during experimental period (ml/d)**

<b>Treatments</b>	<b>Average water offered (ml)</b>	<b>Average water leftover (ml)</b>	<b>Average water intake (ml)</b>
T <sub>0</sub>	2000	1095.66 <sup>a</sup>	904.33 <sup>f</sup>
T <sub>1</sub>	2000	1088.33 <sup>b</sup>	911.66 <sup>e</sup>
T <sub>2</sub>	2000	1086.33 <sup>b</sup>	913.66 <sup>d</sup>
T <sub>3</sub>	2000	1079.66 <sup>c</sup>	920.33 <sup>c</sup>
T <sub>4</sub>	2000	1074.33 <sup>d</sup>	925.66 <sup>b</sup>
T <sub>5</sub>	2000	1069.66 <sup>e</sup>	930.33 <sup>a</sup>
SE±	-----	1.45	1.45
CD (5%)	-----	4.59	4.59

Figures having different superscripts differed from each other



**Fig. 1: Average daily feed intake during experimental period (DM basis)**



**Fig. 2: Average daily water intake during experimental period (ml/d)**