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Effect of Dietary Dried Thyme Leaves Supplementation on Performance of Lactating Goats

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Abstract: Thyme (*Thymus vulgaris* L.) is considered a promising natural dietary supplement. This study aimed to evaluate the effect of dried thyme leaves on the lactation performance of Saanen/Florida goats (crossbreed) and the chemical composition of the milk. Goats were assigned to control or experimental diets for 56 days after 60 days postpartum. Both groups were fed according to their nutritional needs, while the experimental animals were fed the control ration plus 6 g thyme leaves/kg of concentrate mixture. Feed intake and milk yield did not differ significantly between groups. However, thyme supplementation significantly decreased milk fat content while increasing milk protein and solid-not-fat contents.

Introduction

- **Nutrition** is a determining factor in achieving high milk yield and producing high-quality milk.
- **Natural additives**, such as herbal supplements are increasingly used to support animal health and sustainable production.
- **Thyme** contains phenolic compounds such as thymol and carvacrol, associated with antimicrobial and antioxidant activity.
- **Aim**: to evaluate the effect of dried thyme leaves on milk production and composition in lactating Saanen/Florida goats.

Materials and methods

- **Sixteen multiparous lactating goats** (Saanen/Florida crossbreed), 60 days after parturition.
- **Treatments**: DTL0 = control; DTL6 = control + 6 g dried thyme leaves/kg concentrate.

16 goats

DTL0 control

DTL6 thyme

- **Feeding trial**: 56 days; concentrate mixture, alfalfa hay and wheat straw supplied according to nutritional needs.
- **Milk yield** recorded at 14-day intervals; samples analysed for **fat, protein, lactose, solids-not-fat (SNF) and ash.**
- **Statistical analysis:** Data analysed by one-way ANOVA; the effect of treatment, time, and their interactions were included in the statistical model; significance declared at $P < 0.05$.

Results and discussions

- Feed intake did not differ between treatments
- Milk yield was not significantly affected by thyme supplementation (DTL0: 4,097 vs DTL6: 4,062 g/day; $P > 0.05$.

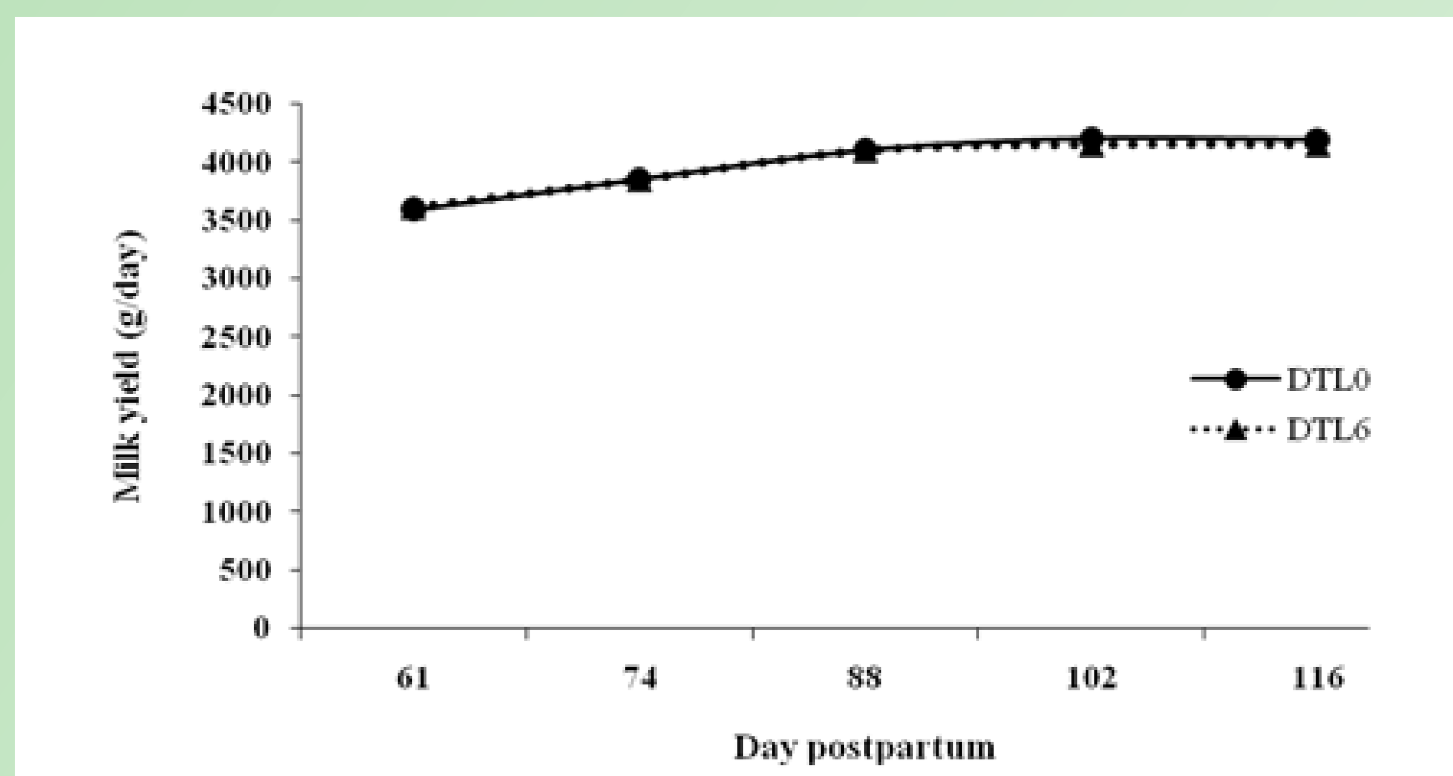

Figure 1. Lactation curves of goats as influenced by supplemental dietary dried Thyme leaves (DTL).

- Milk fat content decreased significantly in DTL6
- Milk protein and SNF increased significantly in DTL6.
- Lactose and ash contents remained constant .

Table 1. Milk composition of lactating Saanen/Florida goats (crossbreed) during the experiment

	Treatment[1, 2]		SEM	Significance level[3]		
	DTL0	DTL6		Treatment	Time	Treatment × Time
Fat	36.84	27.35	1.310	<0.001	0.023	0.987
Protein	31.65	33.96	0.370	0.001	0.492	0.354
Lactose	44.15	43.97	0.227	0.692	0.071	0.684
SNF[4]	83.15	85.14	0.410	0.015	0.371	0.748
Ash	7.33	7.41	0.023	0.056	0.468	0.088

[1]DTL0 = control treatment, DTL6 = treatment with 6 g dried thyme leaves (DTL)/kg concentrate mixture.

[2] Number of subgroups-pens (replicates)/treatment = 4. Number of goats/pen (replicate) = 2.

[3] Numbers are probability values. Treatment × Time interactions for milk yield are illustrated in Figure 1. (Time: P=0.277, Treatment × Time: P=0.999).

[4]SNF = solid-not-fat.

Conclusion

Dietary dried thyme leaves supplementation, at level 6 g/kg concentrate feed, in isonitrogenous and iso (net energy) energetic diets for lactating goats did not affect their performance, increasing milk protein and solid-not-fat content, but decreasing milk fat content.