

PARTIAL SUBSTITUTION OF CUMIN SEED MEAL BY JATROPHA MEAL AS A
POTENTIAL PROTEIN SOURCE FOR FEEDING

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ABSTRACT

This study was carried out to evaluate the effect of incorporating the *Jatropha curcas* meal in place of cumin seed meal (*Nigella sativa*) as a new source of protein on nutrients digestibility, feeding value, growth performance and economic efficiency of growing Damascus goats . Feeding trial lasted for 90 days was conducted using 12 growing Damascus goats(average 23.26 kg live body weight and 6-8 month old). The animals were randomly divided into four groups and fed at 3% of live body weight on four experimental rations. The first group received control ration consisted of concentrate feed mixture (40% yellow corn grains; 20% cumin seed meal; 17% wheat bran; 20% bean straw, 2.0% lime stone; 1.0% salt). In the second, third and fourth rations, cumin seed meal (CSM) was replaced with 10.0%, 20.0% and 30.0% jatropha seed meal (JSM), respectively. The chemical composition, digestibility coefficients, nutritive values, daily gain, feed conversion and economical efficiency were determined. The results indicated that differences among digestion coefficients of all nutrients and nutritive value were not significant in four tested rations. The highest value of average daily gain ($P < 0.05$) was recorded for goats fed on R1 and R2 compared with those fed R3 and R4. Feed conversion as a Kg DMI/kg gain was significantly ($P < 0.05$) better for G1 and G2 (7.10 and 7.04) than G3 (7.35) and G4 (8.05).

Total feed cost was decreased for R4 and R3 (577.73 and 580.66 L.E./h) compared with 593.16 and 592.01 L.E./h for R1 and R2, respectively. On the other hand, the economic efficiency of animals fed rations contained 10% and 20% JSM was higher (16.04% and 15.66%) than those fed 0% and 30% JSM (14.47% and 14.0%), respectively. Similar trend was noticed for relative economic efficiency value (110.85% and 108.22%) which recorded for R2 and R3 compared with 100% and 96.75% for R1 and R4, respectively.

This study highlight that further researches may be required to study the effect of increasing the level of JSM used in goat rations than 30%, which not caused any adverse effect on the animals.

Keywords Jatropha meal, cumin meal, chemical composition, digestibility, goat performance, economic efficiency.