Effect of corn supplementation on purine derivatives and rumen fermentation in sheep fed PKC and urea-treated rice straw

ABSTRACT

This study investigated the effect of different levels of corn supplementation as energy source into palm kernel cakeï urea-treated rice straw basal diet on urinary excretion of purine derivatives, nitrogen utilization, rumen fermentation, and rumen microorganism populations. Twenty-seven Dorper lambs were randomly assigned to three treatment groups and kept in individual pens for a 120-day period. The animals were subjected to the dietary treatments as follows: T1: 75.3% PKC + 0% corn, T2: 70.3% PKC + 5% corn, and T3: 65.3% PKC + 10% corn. Hypoxanthine and uric acid excretion level were recorded similarly in lambs supplemented with corn. The microbial N yield and butyrate level was higher in corn-supplemented group, but fecal N excretion, T3 has the lowest level than other groups. Lambs fed T3 had a greater rumen protozoa population while the number of R. flavefaciens was recorded highest in T2. No significant differences were observed for total bacteria, F. succinogenes, R. albus, and methanogen population among all treatment. Based on these results, T3 could be fed to lambs without deleterious effect on the VFA and N balance.

Keyword: Corn; Palm kernel cake; Purine derivatives; Nitrogen retention; Microbial population; Rumen fermentation