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CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

COPAIBA OIL (*COPAIFERA SP.*) AS FEED ADDITIVE IN DIETS OF FEEDLOT LAMBS: MICROBIAL PROTEIN SYNTHESIS

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Alternatives to traditional growth promoters have been a concern on the animal nutrition. Because the copaiba oil has antimicrobial properties that can modulate the rumen fermentation, it is expected to improve the feed efficiency. Therefore, this study aimed to assess the influence of copaiba essential oil on protein synthesis of feedlot lambs. The experiment was conducted at UFGD, in Dourados, MS, Brazil. Ten castrated Santa Inês lambs, rumen-cannulated, 8 months old, an average weight of 30 kg, were assigned to the following treatments: Control; 25 mg kg^{-1} DM of monensin; 0.5 g kg^{-1} DM, 1.0 g kg^{-1} DM and 1.5 g kg^{-1} DM inclusion of copaiba oil. Two Latin Squares design 5 x 5 were used as the experimental design. The microbial protein synthesis was estimated based on purine derivatives (allantoin and uric acid) of urinary excretion. After urine collection, aliquots (10 mL) of urine samples were diluted in sulfuric acid (40 mL, 0.036 N) to prevent purine derivative destruction and uric acid precipitation. Colorimetric method was used to determine allantoin and uric acid urinary concentration. Excretion of purine derivatives was calculated as the sum of allantoin and uric acid excreted in urine (mmol day^{-1}). Absorbed microbial purines (Pabs, mmol/d) were based on the equation: Pabs = (PD – 0.512×LW0.75) ÷ 0.70, wherein 0.70 is the recovery of absorbed purines and 0.512×LW0.75 is PD endogenous excretion. Data were submitted to analysis of variance using the PROC MIXED by SAS, version 9.0. Copaiba oil supplementation increased the purine derivatives (both allantoin and uric acid) content (mmol day^{-1}) linearly. Total purine excretion and microbial production increased similarly, assuming a high correlation. The inclusion of 1.0 g kg^{1} DM of copaiba oil promoted a greater content of total purines and absorbed microbial purines (49.49 and 17.80 mmol day^{-1}, respectively) than monensin. A quadratic effect was observed in the microbial nitrogen and protein (12.94 and 80.88 g day^{-1}) synthesis, as the highest values were found in the supplementation of 1.0 g kg^{1} DM copaiba oil. Copaiba oil improves microbial nitrogen and protein synthesis, which can be concluded that this essential oil is a potential feed additive for ruminants.

Keywords: by-product, essential oil, purine derivatives, ruminants, additives