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Effect of Tannin and Soybean Oil Supplementation on Gas Production, Degradability and Ruminal Fermentation

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Abstract

Tannins and soybean oil are available as feed supplement to ruminants in the semi-arid region of Brazil and potentially change the degradability of nutrients and gas production. The aim of this study was to evaluate the influence of diets with condensed tannin (CT) and soybean oil (SBO) supplementation on *in vitro* gas production, degradability and ruminal fermentation characteristics. The inclusion of CT and SBO replaced equal amount of concentrate in dry matter basis. Treatments were T1 = 60 % elephant grass + 40 % concentrate (control); T2 = 60 % elephant grass + 37 % concentrate + 3 % CT (Weibull); T3 = 60 % elephant grass + 35 % concentrate + 5 % SBO; T4 = 60 % elephant grass + 32 % concentrate + 3 % CT (Weibull) + 5 % SBO. The gas production was decreased with inclusion of CT (104 ml g⁻¹) and SBO (111 ml g⁻¹), with significant interaction between the two supplements (99 ml g⁻¹) compared to control (128 ml g⁻¹). The effective DM degradability was also reduced to inclusion of CT (31.0 %) and CT-SBO (33.8 %) compared to control (38.4 %). The potential degradability of CP was lower due to SBO (73.5 %) and CT-SBO (80.3 %) inclusion, but higher in NDF potential degradability (71.4 %) than control treatment (84.9 % to CP and 63.8 % to NDF). In terms of effective degradability, CT was the supplement which presented most regular pattern to decrease the degradability of DM, CP and NDF. The effective interaction of supplements is dependent on the type of the nutritional parameter under evaluation. The SBO was the supplement with wider effect on ruminal fermentation, increasing the pH (6.58 vs. 6.50) and NH₃-N (19.5 vs 13.9 ml l⁻¹ of rumen liquid) in comparison to control. The supplements can be regarded as effectives to control the degradability of nutrients and gas production.

Keywords: Lipid, ruminant, secondary metabolite, supplement