METHANE EMISSION FROM SHEEP SUPPLEMENTED WITH MACADAMIA OIL CAKE

EMISSÃO DE METANO EM OVINOS SUPLEMENTADOS COM TORTA DE MACADÂMIA

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Livestock production is an important source of GHG (greenhouse gases), with the agriculture sector being responsible for 7 to 18% of total GHG emissions. The addition of oil to ruminant diets has been used as a methane mitigation strategy. The metabolism of fatty acids in the rumen does not contribute to the growth of ruminal microbial protein, but there is synthesis and incorporation of these acids by the ruminal microbiota. Methanogenic bacteria are more sensitive to fatty acids, so the use of lipids in ruminant nutrition would have potential in Clean Development Mechanism (CDM) proposals, opening the possibility of using fat supplementation to obtain more efficient ruminal fermentation, with higher propionic acid production and consequent greater carbon retention. Macadamia oil cake is a source of highly degradable proteins and can be a source of energy for animal production, especially for ruminants. The objective of this work was to evaluate the effect of lipid supplementation with macadamia oil cake in relation to the emission of methane. Dorper x Santa Inês sheep with approximately 90 days of age were used (n=30). They were kept in individual stalls with a diet composed of 30% roughage (*Cynodon sp.*) and 70% concentrated feed. The animals were distributed in four treatments with different levels of macadamia oil cake supplementation in concentrate (0% inclusion in the control treatment, 6.5% in M1 treatment, 12% in M2 and 20% in M3). Measurement of methane was done in a respirometry chamber. The data were analyzed by the SAS PROC MIXED logistic model, with the means analyzed by the Tukey test at 5%. The daily CH4 emission (g) of the control group (19.047 ± 0.596) was greater than treatments M1 (13.017 ± 0.561), M2 (14.085 ± 0.693) and M3 (13.750 ± 0.542), with P=0.0001. The daily emission of methane was lower in groups that received lipid supplementation with macadamia oil cake compared to the control group (0%).

Keywords: GHG, macadamia, ruminants.

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