

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

INTAKE AND TOTAL TRACT DIGESTIBILITY OF DAIRY HEIFERS SUPPLEMENTED WITH RICINOLEIC ACID AND CASHEW NUT SHELL LIQUID

Hayne M. C. ARAKI¹, Cibeli A. PEDRINI¹, Gleice Kelen R. da SILVA¹, Euclides R. OLIVEIRA¹, Rafael Henrique T. B. de GOES¹, Caio S. TAKIYA², Jefferson R. GANDRA^{1*}

*corresponding author: jeffersongandra@ufgd.edu.br

¹Department of Animal Science, Universidade Federal da Grande Dourados, Rodovia Dourados-Itahum, km 12, Zip Code: 79804-970, Dourados, MS, Brazil.

²Department of Animal Sciences and Industry, Kansas State University, Manhattan, KS. 211 Call Hall. 66506.

The ricinoleic acid and cashew nut shell liquid are functional oils used to modulate ruminal fermentation. This study aimed to evaluate the effects of the inclusion of functional oils on Jersey heifers on intake and total tract digestibility. Eight heifers aged 12 ± 1.5 months with an average weight of 286.75 ± 34.61 kg were used. The animals were randomly distributed into 2 latin squares design 4x4, balanced and contemporary, 2x2 factorial arrangement. The experimental period was 19 days, and 14 days for the adaptation to the experimental diet and 5 days for data collection. Experimental diets were: 1-Control (**CON**) no additives; 2-Ricinoleic Acid (**RA**) inclusion $2\text{g kg}^{-1}\text{DM}$; 3-Technical Cashew Nut Shell Liquid (**CNSL**) inclusion $2\text{g kg}^{-1}\text{DM}$; 4-Ricinoleic Acid + Cashew Nut Shell Liquid (**RA+CNSL**) inclusion of $1\text{g kg}^{-1}\text{DM}$ of each. Diets were formulated to daily gain of 800.0 g d^{-1} , isonitrogenous and same neutral detergent fiber concentration. Samples of all diet ingredients (0.5 kg) and orts (12.5% of total daily orts) from each heifer were collected during the last 5 days of each period and combined into one composite sample of ort for each heifer and one sample of silage. Samples were analyzed to determine dry matter (DM), organic matter (OM), crude protein (CP), ether extract (EE), neutral detergent fiber (NDF), acid detergent fiber, lignin and ash. Total feces collection was performed during a 24h-period on days 15, 16 and 17 of each experimental period from each heifer, and then feces were homogenized and aliquots of 10% were frozen at -20°C until analyses. Data were submitted to analysis of variance using the PROC MIXED by SAS, version 9.0. Heifers supplemented with **RA** showed lower dry matter intake (11.59 kg day^{-1}) in relation to **CON** (12.96 kg day^{-1}); **CNSL** (13.80 kg day^{-1}) and **RA+CNSL** (12.52 kg day^{-1}). No effect of **CNSL** and **RA+CNSL** was observed for dry matter and nutrients intake. No effect of any functional oil was observed for dry matter and organic matter digestibility. However, heifers supplemented with **AR+CNSL** showed higher crude protein and neutral detergent fiber digestibility in relation to the others. The **RA+CNSL** diet positively influenced the intake and total tract digestibility of dairy heifers. It is recommended the use of 1g kg DM^{-1} of **AR** and **CNSL** in the diets of growing dairy heifers.

Keywords: antibiotics free, functional oils, metabolism, ruminal modulation

Acknowledgments: Conselho Nacional de Desenvolvimento Científico e Tecnológico

Promoção e Realização:

Apoio Institucional:

Organização: