CELLULOLYTIC ENZYME IN DIETS BASED ON SUGARCANE OR CORN SILAGE FOR DAIRY HEIFERS: TOTAL TRACT DIGESTION

BUENO, Giovani Adriano dos Santos[1]; **ALEM, Bruna da Silva**[1]; **PEREIRA, Emanoelle de Matos**[1]; **FRANCO, Isabela da Silva**[1]; **SANTOS, Tamiris Alves**[1]; **GANDRA, Jefferson Rodrigues**[1] (jeffersongandra@ufgd.edu.br);

[1] Curso de Zootecnia, Faculdade de Ciências Agrárias, Universidade Federal da Grande Dourados, Rodovia Dourados-Itahum, km 12, CEP: 79804-970, Dourados, MS, Brasil.

The aim of this study was to evaluate the total tract digestion in dairy heifers supplemented with cellulolytic enzyme (Fibrozyme®) in diets based on sugarcane or corn silage. Eight animals with average body weight of 160.25 ± 15.56 kg were used in two 4x4 Latin squares, in 2x2 factorial arrangements. The experimental period was 18 days with 12 for adapting experimental diets, 6 for data collection, and 5 days of wash out. The experimental diets were: corn silage without Fibrozyme® (CS); sugarcane silage without Fibrozyme® (SS); corn silage with Fibrozyme® (CSF); sugarcane silage with Fibrozyme® (SSF). The animals received Fibrozyme® 20g day^{-1}. 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 6 days of each period and combined into one composite sample of ort for each heifer and one composite sample of silage. Samples were analyzed to determine dry matter (DM), 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 -20ºC until analyses. Data were submitted to analysis of variance using the PROC MIXED by SAS, version 9.0. Sugarcane silage decreased ($P<0.05$) dry matter, organic matter and crude protein digestibility. However cellulolytic enzime Fibrozyme® increased ($P<0.05$) dry matter, organic matter and crude protein digestibility. This occurred because the amount of fiber indigestible present in the sugarcane silage decreases feed passage rate in the rumen, through physical, chemical and metabolic factors. Due to the decreased rate of passage, the action time of fibrolytic enzyme on the cell wall degradation was higher, causing greater degradability of nutrients. Interaction effect ($P=0.006$) was observed on NDF digestibility was higher when heifers were fed CSF diet compared to SS or SSF diet, but did not differ of animals fed CS diet. However CS diet do not differs of animals fed SSF diet, showing the efficiency of cellulolytic enzyme Fibrozyme®. Cellulolytic enzyme (Fibrozyme®) positively influenced dry matter and nutrients digestibility of dairy heifers based on sugarcane or corn silage diets.

Key Words: carbohydrate metabolism, fiber digestion, xylanase

Acknowledgments: Universidade Federal da Grande Dourados - MS