I-INTERNATIONAL MEETING OF ANIMAL SCIENCE IN SEMI-ARID REGIONS
Universidade Federal do Agreste de Pernambuco – UFAPE
July 03rd to 05th, 2024, Garanhuns-PE

Ruminant Nutrition

Does the addition of condensed tannins to elephant grass during ensilage alter the blood biochemical profile of dairy steers?

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The ensiling process is one of the alternatives adopted to ensure feed supply for ruminants during periods of low forage availability. As well, the addition of condensed tannins in cattle diets can provide benefits to metabolism. Therefore, the aim of presente work was to evaluate the blood biochemical profil in dairy steers fed with condensed tannins added to elephant grass (*Pennisetum purpureum Schum.*) during ensiling to test the hypothesis that condensed tannins can added to elephant grass during ensiling to improve blood biochemical profile. The experiment was conducted in the Academic Unit of Serra Talhada of the Federal Rural University of Pernambuco. Five intact Holstein-zebu dairy steers with an body weight of 151 kg were used. In the pre-experimental period, all animals were treated against ecto and endoparasites. Animals were kept in individual stalls. Each stall had a feeder. The experimental design was a 5×5 Latin square. The experimental period lasted 65 days, divided into five periods of 13 days, being seven days for adaptation of animals to experimental conditions and six for data collection. Experimental diets were isoproteic (119.2 g/kg dry matter) and composed elephant grass silage or fresh elephant grass, ground corn grain, soybean meal, urea, and mineral salt. Feeding was done twice a day at 08:00 and 16:00 h to allow for ad libitum intake and adjusted next feed upward by 10% leftover every day. Treatments consisted of grass without tannin; grass with tannin; grass with tannin diluted in water; silage with tannin; and silage without tannin. Blood samples were collected by jugular vein puncture, in tubes containing EDTA anticoagulant solution for glucose determination and clot activator-containing tubes for albumin, uric acid, total cholesterol, total proteins, triglycerides, alanine aminotransferase, and aspartate aminotransferase analyses. All variables were subjected to the analysis of variance followed by the Tukey test, using the GLM procedure of Statistical Analysis Systems. The differences were significant at 5% of error probability. Condensed tannins added to elephant grass during ensiling significantly affect glucose variable ($P<0.05$), where the silage with tannin treatment showed better performance (58.95a mg/dL), followed by grass with tannin (58.11ab mg/dL), grass with tannin diluted in water (57.32ab mg/dL), grass without tannin (55.69ab mg/dL) and silage without tannin (52.37b mg/dL). There was no significant effect ($P>0.05$) on the other variables. Possibly, the addition of tannins in the ensiling process modified fermentation within the silo, increasing propionate and lactate levels, resulting in increased blood glucose in animals. It is recommended to add condensed tannins to elephant grass during ensiling to improve blood glucose levels in bovines.

Keywords: cattle; phytogenic additive; secondary metabolites, serum levels.

Animal Experimentation Ethics Committee: approval no. 6736060922/UFRPE.

Financial support: CAPES.