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Dietary xylanase addition and nutrient digestibility, rumen fermentation and duodenal fibre digestion in sheep

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The current study aimed to determine the effect of adding xylanase enzyme (XY) in a basal diet containing 30% corn stover on feed intake, ruminal fermentation, digestibility, duodenal fibre digestibility and some blood urea, phosphorus and triglycerides. Four male Rambouillet sheep (39±1.8 kg BW), with permanent rumen and duodenum cannulae were used in a 4×4 Latin square design. Sheep were distributed and fed on a basal diet without enzyme addition (XY0), or with addition of xylanase at 1 (XY1), 3 (XY3), and 6 (XY6) µL/g DM of the basal diet for 21 days. The duodenal neutral detergent fibre (NDF) and acid detergent fibre (ADF) digestibilities were determined at the days 16 and 17. The treatments XY1 and XY3 increased ($p<0.05$) feed intake from different nutrients with no difference between XY0 versus XY1 and XY3 for crude protein, NDF and ADF intakes. Increased total tract digestibilities were obtained with XY6 with lower digestibility for XY0 and XY3 ($p<0.05$). Duodenal NDF and ADF digestibility were increased with increasing doses of XY ($p<0.05$). No effect was observed on measured blood parameters due to addition of XY. Both of XY1 and XY3 increased values ($p<0.05$) of ruminal pH at all sampling times ($p<0.05$). Increased ($p<0.05$) ruminal ammonia-N and acetic acid concentrations were in XY6 and XY3 sheep. The lowest ($p<0.05$) daily methane production was in XY6 sheep. However, XY6 increased ruminal microbial protein production compared to other treatments. It could be concluded that addition of XY at 3 and 6 µL/g DM of the basal diet of Rambouillet sheep improved nutrients digestibility and ruminal fermentation without affecting blood parameters, and with low feed consumption.

Biography

A Z M Salem had his PhD in 2002 from Faculty of Veterinary, Leon University, Spain. Now he is working as a Professor Researcher at Faculty of Veterinary Medicine, Autonomous University of the State of Mexico, Mexico. He is specialist in Ruminant Nutrition and working with using the tree leaves extracts, exogenous enzymes, yeasts, As feed additives in animal nutrition. Salem has a lot of research papers published in ELSEVIER, SpringerLink, Wiley, with some text books as well as registered patents in his field of research. He is currently in the editorial board of two international indexed journals in the JCR with impact factor (Journal of Integrative Agriculture and Animal Nutrition and Feed Technology) and he is a reviewer in a lot of scientific international journals.

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