

ABSTRACT N.0127

Dear Dr./MD **Arianna Buccioni**,
here are the details of your abstract as they were saved on Feb 19, 2015.

Physiology and metabolism

RESPONSE OF RUMEN MICROBIAL ECOSYSTEM TO DIETS INTEGRATED WITH CHESTNUT OR QUEBRACHO TANNINS IN DAIRY EWES.

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The aim of this study was to evaluate the response of rumen microbial ecosystem to diets integrated with chestnut or quebracho tannins in dairy ewes. The experiment was conducted as 3 X 3 Latin square design and the trial was repeated 2 times. Three fistulated ewes fed 3 diets based on chopped grass hay ad libitum administered and on 800 g / head and day of 3 experimental concentrates containing 84.5 g of soybean oil / kg of DM and 52.8 g / kg DM of bentonite (CON) or chestnut tannin extract (CHT) or quebracho tannin extract (QUE). At the end of each experimental period rumen liquor was analysed for fatty acid and microbial profiles. On the basis of the molar stoichiometric relations between rumen volatile fatty acid and CH₄ production ($CH_4 = 0.45 \times \text{acetate} - 0.275 \times \text{propionate} + 0.4 \times \text{butyrate}$), the CH₄ emission was also predicted for each diet. A canonical correspondence analysis (CCA) was performed in order to find potential connection between microbial community, fatty acid composition of rumen liquor and potential CH₄ emission, and how these connections are influenced by the different diets. DGGE bands were used as "species" data, while fatty acids and potential CH₄ emission as "environmental" variables.

The microbial profile was affected by the presence of tannins. The bacterial community of QUE and CHT samples of rumen liquor was positively correlated to vaccenic acid, conjugated linoleic acid and C18:2 trans-11 cis-15. Moreover, the bacterial communities as affected by CHT resulted mainly positively correlated to butyric acid, acetic acid and with potential CH₄ emission. In contrast, the bacterial communities as affected by CON resulted mainly correlated positively to C18:2 cis-9 cis-12 and C18:0 production.

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