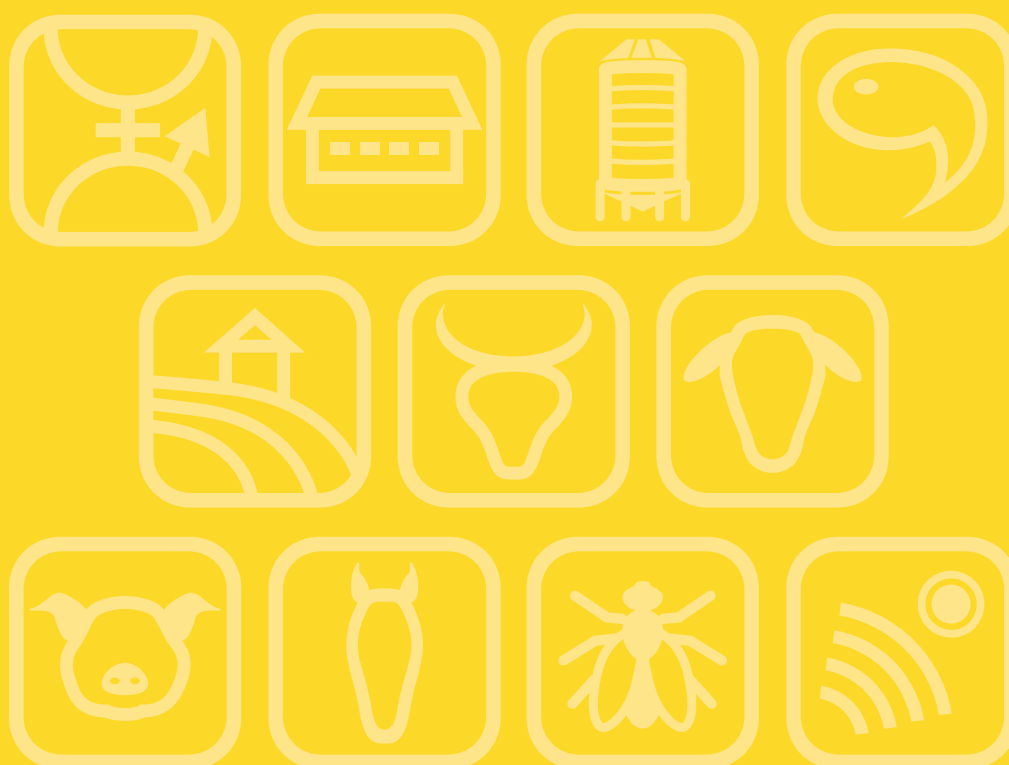


Book of Abstracts of the 73rd Annual Meeting of the European Federation of Animal Science



Book of abstracts No. 28 (2022)

Porto, Portugal

5 – 9 September, 2022

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European Federation of Animal Science**

Fatty acid profile of milk from ewes fed a diet including broccoli or cauliflowerJ. Mateo¹, C. Saro^{1,2}, I. Mateos^{1,2}, I. Caro³, F.J. Giráldez² and M.J. Ranilla^{1,2}¹Universidad de León, Campus Vegazana, s/n, 24071 León, Spain, ²Instituto de Ganadería de Montaña (CSIC-Universidad de León), Finca Marzanas, s/n, 24346 Grulleros, Spain, ³Universidad de Valladolid, Avda. Ramón y Cajal, 7, 47005 Valladolid, Spain; crisrina.saro@unileon.es

Recent research has suggested that brassicas could be included in the diet of ruminants without negative effects on animal performance but its effects on milk composition remain unknown. The aim of this study was to assess the effects of the inclusion of broccoli or cauliflower in the diet of dairy sheep on the fatty acid (FA) profile of milk. Thirty Assaf ewes divided in three groups and in the middle phase of lactation (2.07 ± 0.20 kg) were fed *ad libitum* on a mixture of 1:1 forage:concentrate. Control (CON) ewes received no supplement, but broccoli (BRO) and cauliflower (CAU) groups received a supplement of 1.5 kg of fresh chopped vegetable, respectively, for 6 weeks (3 for adaptation and 3 for sampling). Milk yield was recorded daily and on days 22, 28, 35 and 42 milk samples were taken for chemical analysis. Samples for fatty acids (FA) determination were frozen and lyophilized. FA concentration was expressed as relative proportions (% of the sum of area of the all FA methyl esters identified). Data were analysed as repeated measures using the lmr4 package of R. Diet, sampling day and the interaction were included as fixed effects in the model. Feeding with brassica vegetables at the levels used in this study significantly ($P < 0.05$) increased the proportion of saturated fatty acids and decreased that of monounsaturated fatty acids as compared to control. The ratio n6:n3 was also affected ($P < 0.05$) by the diet, being lower for BRO (3.18) than for CON (3.57) treatment; CAU milk showed values in-between values (3.33). These differences probably were related in part to differences in dietary intake of fatty acids, as brassica supplementation decreased the content of oleic acid and increased those of palmitic acid and linolenic acid. The inclusion of brassica vegetables in the diet of dairy ewes modified the fatty acid profile of milk. Grant AGL2016-75322-C2-2-R funded by MCIN/AEI/ 10.13039/501100011033 and by the European Union 'ERDF A way of making Europe'.

Introducing tomato pulp in a dairy ewes diet does not affect rumen microbial growth or structureI. Mateos^{1,2}, C. Saro^{1,2}, T. De Evan³, A. Martín^{1,2}, R. Campos^{2,4}, M.D. Carro³ and M.J. Ranilla^{1,2}¹Instituto de Ganadería de Montaña (CSIC-Universidad de León), Finca Marzanas, s/n, 24346 Grulleros, Spain, ²Universidad de León, Campus Vegazana, s/n, 24071 León, Spain, ³Universidad Politécnica de Madrid, Ciudad Universitaria, 28040 Madrid, Spain, ⁴Universidad Nacional de Colombia, Carrera 32, 76531 Palmira, Colombia; mjrang@unileon.es

The industrial use of tomato generates high quantities of by-product, such as the tomato pulp (TP), a feedstuff for ruminant nutrition with a medium protein and energetic contents. The aim of this study was to evaluate the effect of partially replacing alfalfa hay, soybean and beet pulp by tomato pulp in a dairy sheep diet on rumen microbial population and microbial protein synthesis (MPS) in Rusitec fermenters. Two diets were incubated in 4 Rusitec fermenters in a cross-over design with two 14-day incubation periods. 30 g of diet (1:1 forage:concentrate) were incubated in each fermenter; 2 received a control diet (CON) and the other 2 received the diet containing TP (17.3% TP). ¹⁵N was used as a microbial marker. On days 8 and 9 of incubation, samples of liquid and solid content were obtained from the fermenters for DNA extraction and MPS determination. DNA was used to quantify the abundance of bacteria and protozoa and the relative abundance of fungi, archaea and 3 fibrolytic bacteria by qPCR. Solid and liquid digesta were processed, microbial pellets obtained and both were analysed for ¹⁵N content. In the liquid phase, protozoa were more abundant ($P < 0.05$) in TP fermenters than in control ones. In solid phase none of the microbial groups was affected by the diet, but the relative abundance of *Fibrobacter succinogenes*, *Ruminococcus albus* and *R. flavefaciens* was higher ($P < 0.05$) in CON fermenters than in TP ones. Neither MPS nor its efficiency were affected ($P > 0.05$) by the incubated diet. However, the ¹⁵N enrichment in liquid associated bacteria and the ¹⁵N enrichment of NH₃-N were higher ($P < 0.05$) in TP fermenters than in the CON. Replacing common feedstuff by tomato pulp in a dairy sheep diet incubated in the Rusitec system slightly influenced rumen microbial structure and did not affect microbial protein synthesis. Grant AGL2016-75322-C2-2-R funded by MCIN/AEI/10.13039/501100011033 and by the EU 'ERDF A way of making Europe'