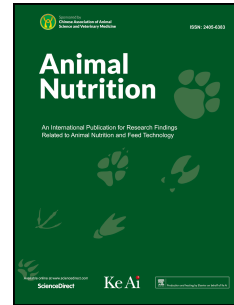


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Effects of feeding whole linseed on ruminal fatty acid composition and microbial population in goats

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16 **ABSTRACT**

17 The objective of the present study was to evaluate the effect of feeding different levels of whole
18 linseed, as a source of n-3 polyunsaturated fatty acids (PUFA), on ruminal fatty acid composition
19 and microbial population in goat. Twenty-four crossbred Boer goats were assigned to three
20 dietary treatments: L0 (control), L10 and L20 containing 0%, 10%, or 20% whole linseed,
21 respectively. The ruminal pH and concentration of total volatile fatty acids (VFA) were not
22 affected by dietary treatments. The feeding of L10 and L20 diets produced higher ($P < 0.05$)
23 molar proportions of acetate and lower ($P < 0.05$) molar proportions of butyrate and valerate
24 than the L0 diet. Molar proportions of myristic acid (C14:0) and palmitic acid (C16:0) were
25 lower ($P < 0.05$) in the rumen of goats offered L10 and L20 diets than the control diet. However,
26 stearic acid (C18:0), vaccenic acid (C18:1 trans-11), conjugated linoleic acid (CLA, C18:2 trans-
27 10, cis-12) and α -lolenic acid (C18:3 n-3) were higher ($P < 0.05$) in the rumen of goats fed
28 L10 and L20 than for L0. Both inclusion levels of linseed in the diet (L10 and L20) reduced the
29 ruminal total bacteria, methanogens, and protozoa compared with L0 ($P < 0.05$). The effect of
30 the dietary treatments on cellulolytic bacteria, varied between the individual species. Both

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