CONCENTRATIONS OF IN VITRO VOLATILE FATTY ACIDS OF DIETS WITH
CASHEW NUT SHELL LIQUID AND CHITOSAN AS ADDITIVES FOR RUMINANTS

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Chitosan is a natural, amino polysaccharide product derived from the chitin deacetylation
process. Cashew nut shell liquid (CNSL) extracted from the cashew nut shell (Anacardium
occidentale L.), is considered a natural source of phenolic lipids. The antimicrobial activity
of chitosan and cashew liquid has been observed against bacteria and fungi. Concentrations of short chain fatty acids of rumen liquid, in vitro, in diets complemented
with chitosan (C), Cashew nut shell liquid (CNSL) and association between chitosan and
cashew nut shell liquid (CNSLC) were evaluated. The experimental design was a
completely randomized design and the additives were added in the proportions: 500 mg kg
DM⁻¹ of CNSL; 500 mg kg DM⁻¹ of chitosan; 200 mg kg DM⁻¹ of monensin (positive control)
and association between CNSLC (500 + 500 mg kg DM⁻¹) combined at the 0, 35, 50, 65
and 80% ratios of concentrate. The results of volatile fatty acids (VFA) were submitted to
PROC MIXED, considering a repeated measurement effect by the REPEATED command,
indicating the combination of additive effects and concentrated voluminous ratio (id) as
subject (via the SUBJECT = id command) and defining the covariance structure between
repeated measures (in this case, we chose unstructured via command TYPE = UN).
Interaction between the proportions of concentrates and the inclusion of the additives (P
<0.05) on the CFAs studied was verified. It verified influence between the concentrate:
Voluminous ratio on acetic acid, propionic and butyric concentrations. The alteration of the C2: C3 concentration observed with the monensin supply, higher than that
obtained with the other diets, favored the population of fibrolytic bacteria, which mainly
produce acetate, releasing hydrogen, on the other hand, the natural additives (CNSL, C
and CNSLC) provided an increase of the propionate and reduction of the C2: C3 ratio.
The inclusion of the chitosan additive and / or CNSL increases the production of propionic
acid and reduces the C2: C3 ratio, resulting in increased energy production for the animal.

Keywords: concentrate level, cattle, acetate, butyrate, chitosan

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