

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

## HISTOLOGY OF EPITHELIUM AND MUSCULAR TUNIC OF THE WEANED LAMB RUMEN SUBMITTED TO EXCLUSIVE ROUGHAGE OR CONCENTRATE DIET

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The dietary fiber levels of roughage foods and the concentration of different volatile fatty acid profiles in the rumen from diets concentrated may affect the muscular development of the rumen as well as the structure of the ruminal epithelium. The objective of the present study was to evaluate the influence of the exclusive diet of roughage or concentrate on the histology of the ruminal epithelium and the muscular tunic of the rumen of weaned lambs. Sixteen lambs were divided into two diets: ROU - exclusive diet of roughage (alfalfa hay); or CON - exclusive diet of concentrate (oat grain + soybean meal). After slaughtering, samples were collected from two regions of the rumen: one in the caudo-dorsal blind sac (CDS), and the other at 5 cm caudal to the sphincter cardia (CSC). Microscopic thickness measurements of cornified squamous stratified epithelium of the rumen, consisting of the stratum corneum (SC), measured separately, and the stratum basale, stratum spinosum and stratum granulosum (SBSG), measured in set. The thickness of the muscular tunic (MT) was measured, which was taken as the sum of the circular fascicle and longitudinal fascicle. The experiment set out in a completely randomized design, with four treatments and eight replications, in factorial 2 diets x 2 rumen regions. Data were submitted to analysis of variance, and Tukey test at 5% of significance. There was no interaction ( $p > 0.05$ ) between diet and rumen region for the variables studied. For the diet as well as for the rumen region, there was difference ( $p < 0.05$ ) only for the thickness of the SC (keratinization). Regarding diet, the measurements of SBSG, SC and MT, were respectively: 75.1  $\mu\text{m}$ ; 6.8  $\mu\text{m}$ ; and 1,466  $\mu\text{m}$  for the diet ROU; and 72.5  $\mu\text{m}$ ; 12.4  $\mu\text{m}$ ; and 1,308  $\mu\text{m}$  for the CON diet. Regarding the rumen region, the measurements of SBSG, SC and MT, were respectively: 73.1  $\mu\text{m}$ ; 11.0  $\mu\text{m}$ ; and 1,443  $\mu\text{m}$  for the CSC region, and 74.5  $\mu\text{m}$ ; 8.1  $\mu\text{m}$ ; and 1,330  $\mu\text{m}$  for the CDS region. The development of rumen musculature was similar between diets and rumen regions. The CSC region of the rumen showed more keratinized papillae than the CDS region. The lambs fed a CON diet showed high keratinization of the rumen papillae, which may affect the absorptive capacity of the ruminal epithelium.

**Keywords:** keratinization, ruminal musculature, ruminal papillae, sheep

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