

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

MORPHOLOGY AND ABSORPTIVE SURFACE OF RUMINAL PAPILLAE OF WEANED LAMBS SUBMITTED TO EXCLUSIVE ROUGHAGE OR CONCENTRATE DIET

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In the rumen, the different products from the fermentative process of food affect differently the development of the ruminal papillae and may alter its absorptive surface. The objective of this work was to evaluate the influence of the exclusive diet of roughage or concentrate on the morphological characteristics and the absorptive surface of the ruminal papillae 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). In each region, the number of papillae per cm² (NP) was counted, and after the histological processing, the following microscopic analyzes were performed: papilla height (PH), measured from the tip to the basement membrane; width of the papilla (WP), defined as the mean of the widths of the base, middle and tip of the papilla; surface area of the papilla (SAP) and the total surface area per cm² of the rumen (TSA). 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. Regarding the diet, only the PH and the WP presented difference ($p < 0.05$). The measures of NP, PH, WP, SAP and TSA, for the ROU diet, were respectively: 81; 2,086 μm ; 341 μm ; 0.023 cm²; and 1.93 cm²; and for the diet CON, 84; 1,672 μm ; 390 μm ; 0.022 cm²; and 1.96 cm². Regarding the rumen region, all variables presented differences ($p < 0.05$), except for PH. Measurements of NP, PH, WP, SAP and TSA, were respectively: 75; 1,795 μm ; 298 μm ; 0.017 cm²; and 1.35 cm², for the CSC region; and 90; 1,963 μm ; 433 μm ; 0.027 cm²; and 2.54 cm² for the CDS region. The CDS region had wider papillae, higher NP and greater absorptive surface than the CSC region. Among the diets, the absorptive surface of the rumen had a similar behavior. However, the ROU diet promoted greater elongation of the papillae. The use of CON diet generated shorter and wider papillae.

Keywords: animal feed, ruminal development, ruminal histology, sheep

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