

## RUMEN PARAMETERS OF SHEEP FED *ARACHIS PINTOI* CV. BELMONTE HAY<sup>1</sup>

### PARAMETROS RUMINAIS DE OVINOS ALIMENTADOS COM FENO DE *ARACHIS PINTOI* CV. BELMONTE

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<sup>1</sup> Financial support: Fundação de Amparo à Pesquisa do Estado de São Paulo

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Studies on animal nutrition have shown factors that affect livestock yield and their interaction with the environment, through assessments on food nutritional values, nutrient metabolism in livestock and biochemical parameters related to nutrition and animal breeding. Inclusion levels of hay *Arachis pintoi* cv. Belmonte in the diet of sheep were studied by measuring the dry matter intake (DMI), production of short chain fatty acids (SCFA), ammonia nitrogen (NH<sub>3</sub>-N) and rumen pH. Four males Santa Inês sheep with cannulas in the rumen were used in a 4x4 Latin Square design with four periods (21 days each) and four treatments that corresponded to the inclusion levels (0%, 30%, 60% and 100%) of *Arachis pintoi* cv. Belmonte to replace grass hay *Cynodon dactylon* cv. Coastcross in the diet. The DMI showed a quadratic effect increased until treatment with 60% of *Arachis* and reduced in the treatment with 100% of the legume. Significant interaction was observed between treatments and sampling times for NH<sub>3</sub>-N and acetate, propionate and butyrate concentration and the acetate:propionate ratio. There was no interaction between treatments and sampling time for rumen pH and total VFA concentration. It is observed a rapid increase in ammonia concentration until 2 hours after the feeding, and then a decline is seen. At 8 hours after the feeding, the quadratic effect occurred ( $P < 0.05$ ) increasing NH<sub>3</sub>-N concentration with 60% of *Arachis*, declining afterwards. The acetate, propionate and butyrate concentration, showed a quadratic effect ( $P < 0.01$ ) in the sampling time after the feeding for treatment with 60% of *Arachis* with the concentration rising until 4 hours and declining thereafter. For total SCFA concentration, when analyzed individually, we observed the effect of sampling time ( $P < 0.05$ ), in which the means showed a quadratic effect, with maximum increase until 4 hours after the feeding, reducing at 8 hours. For acetate:propionate ratio was a linear effect ( $P < 0.05$ ) in the treatment containing 60% of *Arachis* and a quadratic effect ( $P < 0.01$ ) in the treatment with 100% of legume with reduction at 4 hours after the feeding followed by an increase. Fiber contents of forage is highly correlated with DMI and intake increases occurs until it is no longer limited by the rumen filling (physical regulation) and decreases when limited by excess of the metabolic products produced (physiological regulation). This explains the DMI reduction with total replacement of grass hay by the legume, since it presented high CP content, high digestibility and lower fiber content. The rumen concentration of SCFA is related to fermentation conditions in the rumen, and high digestibility diets. The high DMI in animals fed with diets with 60% of *Arachis* and higher concentration of total SCFA and acetate is due to the animals consuming more organic matter fermentable in the rumen. The results suggest that *Arachis* hay contains more than soluble proteins than grass hay, because the rate of ammonia production in the rumen reflects the solubility and fermentability of the diet. The legume proved forage with a high quality and excellent behavior ruminal, ensuring the quality of rumen environment. The treatment containing 60% of *Arachis* showed best results and use of this feed for ruminants is as promising option of nutrient supply to meet production demands of these animals.

**Keywords:** short chain fatty acids, peanut forage, ammonia nitrogen.