

**THEME 9 | RUMINANT NUTRITION AND PRODUCTION**

**Saccharomyces cerevisiae 1026 associated with starch supplementation on in vitro digestion of Marandu grass**

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The potential of live yeast utilization in high grain diets for ruminants is well established, however, in forage-based variable. Thus, objective diets, there are few studies and the results are extremely of this study was to evaluate in vitro the effects of supplementation with *Saccharomyces cerevisiae*, strain 1026, associated with different levels of starch, in forage-based diets (*Brachiaria brizantha* cv. Marandu) harvested in two seasons (rainy and dry season) on the kinetic parameters of forage digestion, as well as on short chain fatty acid (SCFA) and methane production. Three in vitro incubations were performed using ruminal liquid from two cannulated steers, weighing approximately 400 kg, which were kept on grazing conditions. Two simultaneous incubations were done: 1) one using an automatic gas production system in order to obtain gas production profiles; 2) semi-automatic systems in which were determined in vitro digestibility of NDF as well as volatile fatty acid (VFA) and methane production. The study was carried out in a factorial arrangement 2 (with and without yeast) X 3 (0, 10 and 20% starch inclusion). There were no interactions effects between the SC and starch addition for most of evaluated variables. The inclusion of SC promoted a decrease of the in vitro digestibility of the neutral detergent fiber (IVDADF) at 48 hours ( $P < 0.01$ ) for both forages, but increased the IVDADF at 96 hours ( $P = 0.01$ ) for the dry season forage. SC supplementation also decreased the total SCFA production at 24 and 48 hours ( $P < 0.01$ ) and Lagtime ( $P < 0.01$ ) for rainy season forage, as well as caused a decrease on methane production ( $P < 0.01$ ) at 48 hours for both forages. The starch addition promoted a quadratic effect on the total gas production ( $P < 0.01$ ) for rainy season forage and a linear increase ( $P < 0.01$ ) for the dry season forage. In addition, starch addition caused a linear increase ( $P < 0.01$ ) on digestion rate for both forages and a linear decrease ( $P < 0.01$ ) on molar ratio of acetate, a linear increase ( $P < 0.01$ ) on the proportion of propionate and a consequent linear decrease ( $P < 0.01$ ) in the acetate: propionate ratio at 48 hours of incubation for dry season forage. The inclusion of SC in forage-based diets did not showed beneficial effects on ruminal fermentation patterns and as well as on FVA production, however, it showed potential on methane mitigation.

**Keywords:** live yeast, additive, probiotic, methane