

Effects of Ammoniated Sugar Beet Pulp by High Level of Ammoniawith Addition Enzyme and Water on Parameters of in vitro Gas Production

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Abstract The aim of the present study was to evaluate the in vitro gas production parameters of sugar beet pulp ammoniation with urea and ammonia.Ammoniation sugar beet pulp used untreated, or treated with enzyme 0.5 g/kg and addition 30 percent of water.The enzyme was a mix of several enzymes (Cellulase, Xylanase, Beta-glucanase, Pectinase, Phytase, and Alpha-amylase).Treatments were ensiled for 4 weeks.Ruminal fluid was taken from 2 permanently fistulated steers, mixed and strained through eight layers of cheesecloth into a prewarmed thermos, and transported to the laboratory. Samples (200 mg) were weighed into 100 ml calibrated glass vials (3 replicates per treatment sample) and simples were inoculated by a mixture of ruminal fluid and McDougall's artificial saliva buffer solution (in the ratio of 1: 2). Tree blank vials were also incubated with only rumen fluid and buffer to correct the organic matter degradability. Samples were fermentated in 39 °C at the frequent time intervals with a manual pressure transducer and gas tight vials. Headspace gas produced by substrate fermentation was measured at 2, 4, 6, 8, 16, 24, 48, 72 and 96 hours of incubation. Data were analyzed Using GLM procedures of SAS V9.2 for GLM to evaluate differences among experimental groups; means were compared with Tukey test.The results of the current study indicated that both ammonia and enzyme had a potential to decrease sugar beet pulp digestibility as indicated by the gas production parameters under the conditions of the present study.

Keywords sugar beet pulp, ammoniation, enzyme, ammonia