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Evaluation of nutritional value of barley distillers' grain supplementing with different silage additives

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Barley distillers' gain is a one of the most readily protein and fiber sources for dairy cattle. Increasing in energy costs have led to large amount of this agro- industrial by- product being market in wet form. One of the problems encountered in using wet barley distillers' grain is limited storage window and problem in handling wet material. Fresh BDG contain about 70%-80% moisture and it can store in silage to extend shelf life However, there is limited research information available on improving BDG silage with different silage additives. Triplicate samples of 3.5 kg of wet BDG were treated with molasses (2 and 4% DM), sulfuric acid (2 and 4% of DM) and urea (2 and 4% DM) and compacted with vacuum in double-lined plastic tube. Plastic tubes were sealed and stored in ambient temperature about 25 ºC up to 60 days. After 6 days mini- silos were opened and samples were taken from each replication for analysis. Results indicated that ensiled BDG with 4% urea had a higher NH3-N, pH, crude protein and ADF than other treatments and differences were statistically significant ($P<0.05$). However, pH for silage containing sulfuric acid (4%) was lowest. The NDF percentage in urea treatment (2%) was higher than other treatments but organic mattered was higher in silage contained sulfuric acid.

Correlation of *in vitro* gas production and *in situ* technique for evaluation of tomato pomace degradability

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This study was aimed to evaluate Correlation of *in vitro* gas production and *in situ* technique of tomato pomace degradability. Tomato pomace was obtained from five large factories and dried. Seeds and peels components were separated. *In situ* DM degradability was estimated for unground and ground (samples were ground through 2 mm screen) whole tomato pomace, seeds and peels components using the modified *in situ* polyester bag technique. Bags were incubated in the rumen of three fistulated steers fed ordinary diets. The bags were removed following 0, 2, 4, 8, 12, 24, 36, 48 and 72 h of incubation. *In vitro* gas production for the same components, with rumen liquor of same animals at same times, was measured. Regression model was made among the *in situ* and *in vitro* data by SAS 9.1. The degradability of whole pomace and its components showed that most of the DM was degraded after 24 h, although degradation increased up to 48 h but at a much lower rate. The grinding process was highly effective for improving the degradability measures for all samples especially seeds. The results of *in vitro* gas production after 72h incubation for grounds and unground pomace and compounds (229.74±7.8, 178.14.6±10.4, 225±9.5, 104.25±8.33, 81.37±8.8 and 199.3±10.7 ml/g of DM for whole pomace, seeds and peels as ground and unground respectively) were similar to the *in situ* findings (67.33±0.27, 79.6±0.8, 62.8±0.4, 36.07±1.53, 31.73±1.06 and 46.47±0.33% of DM for whole pomace, seeds and peels as ground and unground respectively). Correlations for DM degradability measured by two methods for whole tomato pomace and its components were 0.96, 0.98, 0.98, 0.98, 0.98, and 0.97 for whole pomace, seeds and peels as ground and unground respectively. According to the regression models, *in vitro* gas production for the DM contents of whole tomato pomace and its components could be used instead of the *in situ* technique at lower cost in shorter time.