

## Abstract

This study was carried out to evaluate changes in chemical composition and nutritional value of sesame straw silage in response to urea, molasses and enzyme. For this aim sesame straw was harvested and chopped with a cutting length of about 2 to 4 cm. The chopped straw was then mixed with urea (5%), molasses (10%) and enzyme (2/4 g/kg DM) and ensiled in 5 kg plastic baskets. The silages were opened after 45 days and chemical compositions including dry matter (DM), organic matter (OM), ash, ether extract (EE), crude protein (CP), cell wall and cell wall without hemicellulose fractions were measured according to the standard procedure. Dry matter digestibility, metabolizable energy content and dry matter degradability were also determined by gas production (*in vitro*) and nylon bags (*in situ*) methods. Results showed that the addition of urea significantly increased pH, DM, CP, OM content and decreased EE, ADF and NDF content respectively. Addition of molasses caused a significant increase in DM content and reduction in pH, EE, ADF and NDF content ( $p < 0.05$ ). Addition of enzyme caused a significant reduction in ADF and NDF content ( $p < 0.05$ ). The *in situ* degradability showed an increase in DM degradability (from 32/82 to 45/34) percent. Also, results from the *in vitro* gas production method revealed that in all incubation times after adding urea the amount of gas production decreased but with adding molasses it was increased and with adding enzyme except in time 2 and 4 gas production values were increased. In conclusion, considering the changes in cell wall contents, hemicellulose contents and degradability values in the present study, it can be suggested that the use of supplements urea and molasses can be used to make good sesame straw silage.

Key words: Sesame Straw, Gas production, Degradability



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