



University of Zabol
Graduate school
Department of Animal Science
The Thesis Submitted for the Degree of Master of Science
(In the Field of Animal Nutrition)

Title:

Effect of molasses and enzymes on chemical composition and digestibility of edible mushroom waste silage

Supervisor:

Dr. K. Shojaeian

Advisors:

Dr.M. Yousef Elahi

Dr. Gh. Jalilvand

By:

S. Poor-Shahabi

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Abstract

This study was carried out to evaluate changes in chemical composition and nutritional value of edible mushroom waste silage in response to enzymes and molasses. For this aim edible mushroom waste were prepared and chopped with cutting length about 2 to 4cm. The chopped edible mushroom waste then were mixed with the urea (3 g/kg DM), molasses(10%) and ensiled in 5 Kg plastic baskets. The silages were opened after 45 day and chemical compositions including dry matter (DM), organic matter (OM), Ash, ether extract (EE), crude protein (CP), cell wall (NDF) and cell wall without hemicelluloses (ADF) 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 enzymes caused a significant increase in DM, OM, CP and EE content and decreased PH, Ash, ADF and NDF content. Addition of molasses caused a significant increase in DM, OM, CP and EE content and decreased PH, Ash, ADF and NDF content. The *in situ* degradability outputs indicated an increased DM degradability. In addition, the findings obtained from *in vitro* gas production method revealed that the time incubation addition of enzymes and molasses caused decreased. In conclusion, considering the changes in cell wall contents, hemicelluloses contents and degradability values in the present study, it can be suggested that the use of supplements enzymes and molasses can be used to make good edible mushroom waste silage.

Keywords: Enzyme, Chemical compounds, *Agaricus bisporus* waste, Digestibility, Molasses