University of Zabol
Graduate School
Faculty of Agriculture
Department of Animal Science

The Thesis Submitted for the Degree of Master of Science
(In the Field of Animal Nutrition)

Title:

Effect of bacterial additive and fibrolytic enzyme on *in vitro* gas production of corn silage

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January 2020

Abstract
This study was carried out to assess the effect of bacterial additive and fibrolytic enzyme on the *in vitro* gas production of forage corn silage. For this aim forage corn were harvested and chopped with cutting length about 2 to 4cm. and were mixed with the bacterial additive (0, 0.5 unit 10^8 cfu/g) and fibrolytic enzyme (0,0/5 and 1 g/kg DM) and ensiled in 5 Kg plastic baskets. The silages were opened after 45 day and chemical compositions inculuding 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. OM digestibility and metabolizable energy content estimated by gas production (*in vitro*) method. Results showed that the addition of fibrolytic enzyme caused a significant increased in EE, CP, OM content and reduction in DM, Ash, pH, ADF and NDF content($p<0.05$). Addition of bacterial additive caused a significant increased in OM, Ash, EE content and reduction pH, CP, DM, ADF and NDF content($p<0.05$).In addition, the findings obtained from *in vitro* gas production method revealed that the in all times of incubation addition of fibrolytic enzyme and bacterial caused increased. In conclution, considering the changes in NDF, ADF contents and metabolizable energy values in the present study, it can be suggested addition of fibrolytic enzyme and bacterial can be used to make good corn forage silage.

Key words: Enzyme, Corn, silage, Gas production, Lactobacillus.