



University of Zabol  
Graduate School  
Faculty of Agriculture

Department of Animal Science  
**The Thesis Submitted to the Degree of M. SC.  
In the Field of Animal Nutrition**

**Title**

**Study of additives effect on chemical  
composition and nutritive value of common  
reed forage silage**

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## Abstract

This study was carried out to evaluate changes in chemical composition and nutritional value of common reed forage silage in response to mulberry leaves, barley flour and enzyme. For this aim common reed forage were harvested and chopped with cutting length about 2 to 4 cm. The chopped common reed forage then were mixed with the mulberry leaves (%40), barley flour(%10) and enzyme (2/4 g/kg DM) 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 and cell wall without hemicelluloses 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 mulberry leaves caused a significant increase in pH, CP, ASH content and reduction DM, EE, ADF and NDF content. addition of barley flour caused a significant increase in EE, CP, ASH content and reduction pH, OM, ADF and NDF content. addition of enzyme caused a significant increase CP and ASH content and reduction ADF and NDF content. addition supplements mulberry leaves, barley flour and enzyme caused a significant difference in CP, EE, ASH, OM, ADF and NDF content and there was no significant effect on the chemical composition. The *in situ* degradability results indicated an increased DM degradability (from 24/56 % to 39/95 %). and With increasing incubation time degradation increased. In addition, the findings obtained from *in vitro* gas production method revealed that the time incubation addition of mulberry leaves and barley flour caused increased, and enzyme except in times 2 and 4 caused increased gas production value. 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 additives separately can be used to make good common reed forage silage.

Key words: common reed, Gas production, Degradability