



University of Kentucky
UKnowledge

International Grassland Congress Proceedings

XXI International Grassland Congress / VIII
International Rangeland Congress

The Effect of Additives and Mixed Treatment on Red Clover Silage Quality

Lian Tao
China Agricultural University, China

Zhu Yu
China Agricultural University, China

Liyang Han
China Agricultural University, China

Follow this and additional works at: <https://uknowledge.uky.edu/igc>



Part of the [Plant Sciences Commons](#), and the [Soil Science Commons](#)

This document is available at <https://uknowledge.uky.edu/igc/21/15-2/44>

The XXI International Grassland Congress / VIII International Rangeland Congress took place in Hohhot, China from June 29 through July 5, 2008.

Proceedings edited by Organizing Committee of 2008 IGC/IRC Conference

Published by Guangdong People's Publishing House

This Event is brought to you for free and open access by the Plant and Soil Sciences at UKnowledge. It has been accepted for inclusion in International Grassland Congress Proceedings by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.

The effect of additives and mixed treatment on red clover silage quality

TAO Lian ,YU Zhu ,HAN Liying

Institute of Grassland Science , China Agricultural University , No . 2 Yuan mingyuan Xilu , Haidian District , Beijing 100094 ,China ,E-mail : yuzhu3@sohu .com

Key Words : red clover ,additives ,silage ,fermentation quality ,chemical composition

Introduction The experiment was conducted to investigate the effects of different silage additives and mixed treatment on fermentation quality and chemical composition of red clover silage . The objective of this research was to find an effective way to produce high quality red clover silage .

Materials and methods The first cutting red clover (*Trifolium pretense* .L) , harvested at the early blooming stage , was chopped into about 20mm length and ensiled in plastic bags with FAST-SILE(FS 2.5g/t) , FAST-SILE+cellulase(FS+CE 5.0g/t+1.0g/t) , molasses(M 2%) , formic acid(FA 8l/t) , corn stover (CS 5%) , and without any additives as control(CK) . Triplicate silos for each treatment were stored for 45d at room temperature , then sampled for the analysis of silage quality . (Yu zhu et al . ,1999)

Results The results showed that the pH value , the content of ammonia nitrogen and non-protein nitrogen in all the treatments were markedly lower than the CK ($p < 0.05$) . The lactic acid contents in the FAST-SILE treatment , FAST-SILE plus cellulase treatment and molasses treatment were significantly higher than the CK , but in the treatment of formic acid was very low ($p < 0.05$) . The content of the water soluble carbohydrates in the treatments of molasses , formic acid and corn stover were significantly increased , but in the treatment of FAST-SILE plus cellulase was markedly decreased ($p < 0.05$) . The content of butyric acid in all the treatments did not differ significantly ($p > 0.05$) .

Table 1 The effect of additives and mixed treatment on the fermentation quality and chemical composition of red clover silages .

	pH	LA/DM%	BA/DM%	AN/TN%	WSC/DM%	NPN%TN
CK	5.30a	1.38d	0.14	6.17a	3.23c	41.43a
FS	3.75c	5.38b	0.06	3.48c	2.58c	29.87bc
FS+CE	4.09c	6.97a	0.07	5.01b	1.15d	32.91b
M	4.04c	3.70c	0.02	4.72b	4.69e	32.23b
FA	3.15d	0.00 e	0.02	0.31d	6.37a	20.10c
CS	4.72b	2.87d	0.03	4.91b	4.23b	21.94c
SE	0.06	0.33	0.01	0.028	0.245	0.95

The different letters in the same column show significant differences at 0.05 level .

Conclusion Inclusion added additives and mixed treatment improved the fermentation quality of red clover silages and changed their content of non-protein nitrogen .

Reference

Yu zhu Nishiono N ,(1999) .Ensiling characteristics and ruminal degradation of Italian ryegrass and Lucerne silages treated with cell-wall degrading enzymes . *Journal of the Science of Food and Agriculture*11 ,111-117 .