

P214

Application of lactic acid bacteria on fermentation quality in different stages of rye forage - an *in-vitro* approach

Ki-Choon Choi^{*}, Srisesharam Srigopalram, Soundharrajan Ilavenil, Palaniselvam Kuppusamy, Hyung-Su Park and Jeong Sung Jung

¹ *Grassland and Forages Division, National Institute of Animal Science, RDA, Cheonan 331-808, Republic of Korea.*

Abstract

The objective of the present study is to analyze the lactic acid bacteria (LAB) effects on rye silage fermentation at different stages. Different stages (Booting, Heading, Flowering, and Late flowering stage) of rye were collected from the National livestock farm, National Institute of Animal Science, South Korea. Rye sample was inoculated with lactic acid bacteria and incubated at the anaerobic condition for three months. The nutrient profile such as crude protein (CP), Acid detergent fibre, Neutral detergent fibre and total digestibility nutrients were increased in both control and LAB inoculated samples at all the stages of rye forage. The pH of rye silage was reduced at both stages by LAB inoculation as compared with control. The lactate content was increased in all stages of rye sample by LAB. The acetate concentration and butyrate was reduced in LAB inoculated rye sample. However, acetate concentration was slightly high in LAB inoculated rye at heading and late flowering stage. The LAB population was greater in LAB inoculated rye sample as compared with control sample. However, the massive population was noted in booting stage of rye than the other stages. It indicates the inoculated LAB is the main reason for increasing fermentation quality in the sample through pH reduction by lactate production. Overall results suggest that the isolated lactic acid bacterium is the potent strain that could be suitable for rye forage fermentation at different stages.

Keywords: rye; different stages of rye; lactic acid bacteria; nutrient profile, lactate, acetate

Corresponding author*

Ki Choon Choi

National Institute of Animal Science, RDA, Cheonan 331-808, Korea

Tel: +82-41-580-6755

Fax: +82-41-580-6779

E-mail: choiwh@korea.kr