

Evaluation of Fermentation Ability of Many Lactic Acid Bacteria to Manufacture the Highest Quality Silage of Maize

In-Sok Lee^{1*}, Song-Yee Lee¹, Min-Kyung Choi¹, Chan-Ho Kang¹, Jeong-Man Kim¹

¹Jeollabukdo Agricultural Research Extension Service, Iksan, 54968, Korea.

[Introduction]

Our country has been importing 75% of feed grain from various countries. To overcome it, our government has been enlarging coarse fodder production by supporting various policies. The coarse fodders should be manufactured as silage to provide to animals for a long time. At present in Korea, just one additive for silage has been produced at a company. Therefore, this study was conducted to select the optimum additive, lactic acid bacteria, to produce quality maize silage instead of CMRT.

[Materials and Methods]

The maize used in this study was obtained at field of JARES, which were harvested at the stage of maturity in 2017. The lactic acid bacteria were selected from the Kimchi. The silage of maize straw was made by using various lactic acid bacteria and used to analyze smell, pH, protein, organic acid ADF and NDF after 60 days.

[Results and Discussions]

This study was conducted to determine the quality of maize silage made with various lactic acid bacteria(LAB) during fermentation. Five strains of LAB(*L. plantarum* CMRT, *L. leuconostoc mesenteroides* M17, *L. sakei* C11, M5, SP2) were used in this study. As to smell, the silage of all strains had the same grade from 10 days to 60days. With this, it is impossible to tell the highest silage. The pH level of all silages made with five strains showed less 4.0. All strains seems to have a good sterilizing power. Crude protein(CP) content of all silages made from selected strains has a high tendency compared to the CMRT. Its content of silage originated from M17 was the highest score by 8.39. Acetic acid and butyric acid in all silages were 0. In lactic acid content, CMRT was 13.36 which is superior to the remaining four strains ranged from 10.47 and 11.64. The total digestible nutrient(TDN) content and relative feed value(RFV) of three silages except C11 was similar. The class of this three silages was same as the first. Based on smell, pH, protein, organic acid, and feed value, M17 strain could be recommendable for good silage inoculant of maize as a substitute of ready-made CMRT.

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*Corresponding author: Tel. +82-63-290-6038, E-mail. bioplant325@korea.kr