

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

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 kenaf silage instead of CMRT.

[Materials and Methods]

The kenaf 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 kenaf 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 kenaf 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 silages of C11, M5 and SP2 showed the highest grade from 10 days to 60days, followed by the ready-made CMRT. The pH level of the silages made with C11 strain was 4.45 on average, which is the lowest level. Crude protein(CP) content was significantly lower($p<0.01$) in the silages of C11 and SP2 compared to the ready-made CMRT. Acetic acid and butyric acid were not detected in all silage. Lactic acid of four silages created by M17, M5, C11, and SP2 was comparatively higher than that of the silage of CMRT. The total digestible nutrient(TDN) content levels and relative feed value(RFV) were the highest in the silage of C11 with 69.65 and 155.56, respectively, followed by M17. Based on smell, pH, protein, organic acid, and feed value, M17 strain could be recommendable for good silage inoculant of rice straw as a substitute of ready-made CMRT. Among the organic acid, acetic acid and butyric acid in M17 silages were the highest value as 2.29 and 1.73%, respectively. In lactic acid content, C11 was 2.3 which is superior to the remaining four strains ranged from 0 and 2.16. The total digestible nutrient(TDN) content and relative feed value(RFV) of M17 silages was much higher than those of the others. The class of this silage appeared as 3 superior to that of the CMRT. Based on smell, pH, protein, organic acid, and feed value, M17 strain could be recommendable for good silage inoculant of kenaf as a substitute of ready-made CMRT.

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