

## ABSTRACT

**Widodo, Dwi Satriyo. 2014 The Effect Of Fermentation Period and Additon of *Lactobacillus plantarum* and *Lactobacillus fermentum* to The Quality of Corn Silage (*Zea mays*). Final Assignment Biology Department. Faculty of Science and Technology Maulana Malik Ibrahim Malang Islamic State Universisty. Biology Supervisor : Dr. Hj. Ulfah Utami. M.Si, Religion Supervisor : Ach. Nashichuddin. M.A**

Keyword : Fermentation period, *Lactobacillus plantarum* and *Lactobacillus fermentum*, Corn Silage Quality (*Zea mays*).

Silage is a fresh preserved which stored in silo, a sealed and air tight place in anaerobic condition. The basic principle of making silage is fermented grass by microbes that produce lactic acid. *L. plantarum* (*Lactobacillus plantarum*) and *L. fermentum* (*Lactobacillus fermentum*) including the lactic acid bacteria that produce lactic acid as a product that is desired in the making of silage. Besides the addition of inoculum, fermentation period also affect the quality of silage. Therefore, this study was aimed to determine the effect of fermentation period and inoculum *L. plantarum* and *L. fermentum* addition single or a mixed inoculum.

The sample in this study using corn silage aged approximately 80 days, the inoculum of lactic acid bacteria (LAB) *L. plantarum* and *L. fermentum*. This study used an experimental design method, a Completely Randomized Factorial pattern two way consisting of two factors and three treatments. The first factor is the types of inoculum consisting of 4 levels of treatment (L0 = Silage without inoculum addition, L1 = *L. plantarum*, L2 = *L. fermentum*, L3 = combination of *L. plantarum* and *L. fermentum*) the second factor war fermentation period (J1 = 21 days, J2 = 28 days, and J3 = 35 days). Variables measured include organoleptik quality (texture, smell, and the growth of fungi). Chemical quality pH, temperature ( $^{\circ}\text{C}$ ), water content (%WC), crude protein (%CD), and crude fiber (%CF).

The result showed that J3L3 (treatment in 35 days fermentation and the addition inoculum *L. plantarum* and *L. fermentum* as mixed inoculum) better enhancing texture, smell, WC, CP, and CF. The value in decreasing pH and temperature of silage and there was no fungi.