PENGARUH PENGGUNAAN KATUP FERMENTASI (*ENSILING VALVE*) TERHADAP KUALITAS FERMENTASI *TOTAL MIXED RATION*

Zahra Alya Rinjani
21/477897/PT/08929

INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh penggunaan katup fermentasi (*ensiling valve*) terhadap komposisi kimia, penampakan fisik, dan karakteristik fermentasi *total mixed ration* (TMR). *Total mixed ration* disusun dengan bahan pakan seperti rumput gajah, onggok, *wheat pollard,* bungkil kedelai, dan bungkil kopra. TMR diformulasikan dengan target kandungan protein kasar 12,9% dan *neutral detergent fiber* 53,6%. *Total mixed ration* difermentasi dalam silo kantung plastik kapasitas 30 kg selama 14 hari. Perlakuan pada penelitian ini terdiri atas: silo tanpa katup fermentasi (K0) dan silo dengan katup fermentasi (K1). Pada perlakuan K1, katup fermentasi dipasang pada ujung kantung plastik untuk membuang udara yang ada di dalam plastik. Setelah diperam selama 14 hari, *fermented* TMR (FTMR) dianalisis laboratorium. Analisis FTMR yang dilakukan untuk mengetahui komposisi kimia, penampakan fisik, dan karakteristik fermentasi. Data dianalisis dengan *independent sample t-test* menggunakan program SPSS. Hasil penelitian menunjukkan bahwa penggunaan katup fermentasi tidak mempengaruhi komposisi kimia FTMR setelah fermentasi. Nilai pH, amonia, dan asam laktat dari FTMR juga tidak dipengaruhi oleh penggunaan katup fermentasi. Namun, perlakuan K1 menghasilkan populasi bakteri asam laktat yang lebih tinggi dibandingkan dengan perlakuan K0 ($p=0,101$; 6,09 *vs*. 4,34 $\log^{10}$ cfu/g). Penampakan fisik pada K0 dan K1 tidak berbeda. Secara umum, FTMR pada K0 dan K1 berwarna hijau kekuningan, aroma agak asam, bertekstur remah, dan tidak ada jamur. Penelitian ini menyimpulkan bahwa penggunaan katup fermentasi berpotensi meningkatkan kualitas fermentasi TMR dengan meningkatkan populasi bakteri asam laktat.

Kata kunci: *Ensiling valve,* Fermentasi, Karakteristik fermentasi, Komposisi kimia, *Total mixed ration*

THE EFFECT OF APPLICATION A FERMENTATION VALVE (*ENSILING VALVE*) ON THE QUALITY OF TOTAL MIXED RATION FERMENTATION

Zahra Alya Rinjani
21/477897/PT/08929

ABSTRACT

This research aimed to determine the effect of using a fermentation valve (ensiling valve) on the chemical composition, physical quality, and fermentation characteristics of total mixed ration (TMR). The TMR was formulated using feed ingredients such as elephant grass, cassava pulp, wheat pollard, soybean meal, and copra meal. The TMR was formulated to contain 12.9% crude protein and 53.6% neutral detergent fiber. The TMR was fermented in 30 kg-capacity plastic bag silos for 14 days. The treatments in this study consisted of: silos without a fermentation valve (K0) and silos with a fermentation valve (K1). In the K1 treatment, a fermentation valve was installed at the end of the plastic bag to release air from inside the bag. After 14 days of ensiling, the fermented TMR (FTMR) was analyzed in the laboratory to determine its chemical composition, physical quality, and fermentation characteristics. Data were analyzed using an independent sample t-test with SPSS software. The results showed that the use of a fermentation valve did not affect the chemical composition of the FTMR after fermentation. The pH, ammonia, and lactic acid levels of the FTMR were also not affected by the use of the fermentation valve. However, the K1 treatment resulted in a higher population of lactic acid bacteria compared to the K0 treatment ($p=0.101$; 6.09 vs. 4.34 log10 cfu/g). The physical quality of FTMR in both K0 and K1 treatments was not different. In general, the FTMR from both treatments had a yellowish-green color, slightly acidic aroma, crumbly texture, and there was no mold growth. This results of this study concluded that the use of a fermentation valve has the potential to improve the fermentation quality of TMR by increasing the population of lactic acid bacteria.

Keywords: Chemical composition, Ensiling valve, Fermentation, Fermentation characteristics, Total mixed ration