RINGKASAN

Hijauan seabagi bahan baku pakan akan mengalami peningkatan ketika musim penghujan dan mengalami penurunan ketika musim kemarau. Selain itu, permintaan pakan yang juga meningkat seiring dengan kebutuhan protein hewani untuk manusia menjadikan kuantitas hijauan sebagai bahan pakan ternak perlu tersedia dengan jumlah yang tinggi dan lama. Silase adalah cara pengawetan hijauan dengan memanfaatkan proses fermentasi secara anaerob. Penggunaan BAL mampu mendorong proses fermentasi. BAL yang unggul dapat menghasilkan silase dengan kualitas yang lebih baik. BAL dapat dikatakan unggul karena tergolong dalam *Generally Recognized as Safe* (GRAS), mampu berkembang secara optimal selama proses fermentasi, menurunkan pH, menghambat pertumbuhan mikroba pathogen, memproduksi asam organik, dan membentuk protein silase. Tujuan dari penelitian ini adalah mengetahui pengaruh penambahan isolat BAL terhadap kualitas silase rumput gajah *(Pennisetum purpureum*) dan isolat BAL yang paling berpengaruh dalam meningkatkan nutrisi silase rumput gajah.

Penelitian dilakukan secara eksperimental menggunakan Rancangan Acak Lengkap (RAL). Perlakuan percobaan adalah jenis isolat BAL, yaitu *Lentiplantibacillus kimchii, Limosilactobacillus fermentum, Lantiplantibacillus plantarum, Levilactobacillus brevis*, campuran, dan kontrol. Setiap perlakuan dilakukan pengulangan sebanyak 5 kali sehingga diperoleh 30 unit percobaan. Penelitian ini terdiri atas dua parameter, yaitu parameter utama dan parameter pendukung. Parameter utama penelitian ini adalah konsentrasi asam laktat dan parameter pendukung adalah jumlah populasi bakteri, konsentrasi NH_3, senyawa *Short Fatty Acid* (SCFA) dan proksimat. Data yang diperoleh dianalisis menggunakan *Analysis of Variance* (ANOVA) dengan tingkat kepercayaan 95%. Analisis lanjutan tidak dilakukan karena hasil ANOVA menujukkan hasil berbeda tidak nyata.

Hasil penelitian menunjukkan penambahan BAL pada pembuatan silase rumput gajah berbeda nyata berdasarkan hasil pengukuran konsentrasi asam laktat dengan nilai signifikansi 0,178 ($p>0,05$). Isolat *Lantiplantibacillus plantarum* InaCC-1028 dan *Levilactobacillus brevis* InaCC-1052 mampu memberikan dampak positif terhadap kualitas silase rumput gajah.

Kata kunci:, *Bakteri Asam Laktat, Pakan, Silase*

SUMMARY

Forage as a feed raw material will increase during the rainy season and decrease during the dry season. In addition, the demand for feed which also increases along with the need for animal protein for humans makes the quantity of forage as animal feed ingredients need to be available in high quantities and for a long time. Silage is a way of preserving forage by utilizing the anaerobic fermentation process. The use of LAB can encourage the fermentation process. Superior LAB can produce silage with better quality. LAB can be said to be superior because it is classified as Generally Recognized as Safe (GRAS), able to develop optimally during the fermentation process, reduce pH, inhibit the growth of pathogenic microbes, produce organic acids, and form silage proteins. The purpose of this study was to determine the effect of the addition of LAB isolates on the quality of elephant grass silage *(Pennisetum purpureum)* and the most influential LAB isolates in improving the nutrition of elephant grass silage.

The research was conducted experimentally using a completely randomized design (CRD). The experimental treatment was the type of LAB isolate, namely *Lentiplantibacillus kimchii, Limosilactobacillus fermentum, Lantiplantibacillus plantarum, Levilactobacillus brevis,* mixture, and control. Each treatment was repeated 5 times, resulting in 30 experimental units. This study consisted of two parameters, namely the main parameters and supporting parameters. The main parameter was lactic acid concentration and the supporting parameters were bacterial population, NH_3 concentration, Short Fatty Acid (SCFA) compound and proximate. The data obtained were analyzed using Analysis of Variance (ANOVA) with 95% confidence level. Further analysis was not conducted because the ANOVA results showed the results were not significantly different.

The results showed that the addition of LAB in making elephant grass silage was significantly different based on the measurement of lactic acid concentration with a significance value of 0.178 ($p>0.05$). *Lantiplantibacillus plantarum* InaCC-1028 and *Levilactobacillus brevis* InaCC-1052 isolates were able to have a positive impact on the quality of elephant grass silage.

Keywords: *Feed, Lactic Acid Bacteria, Silage*