ABSTRAK

PENGARUH SUBSTITUSI RUMPUT LAUT *Eucheuma cottonii* DALAM PAKAN RUMPUT GAJAH (*Pennisetum purpureum)* TERHADAP KONSENTRASI VFA PARSIAL DAN ESTIMASI PRODUKSI GAS METANA SECARA *IN-VITRO*

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Penelitian ini bertujuan untuk mengetahui pengaruh substitusi rumput laut *eucheuma cottonii* dalam pakan rumput gajah terhadap konsentrasi *volatile fatty acid* (VFA) parsial dan estimasi produksi gas metana secara *in vitro*. Penelitian ini dilaksanakan di Laboratorium Nutrisi, Balai Penelitian Ternak, Ciawi Bogor pada Oktober sampai November 2018. Penelitian ini menggunakan Rancangan Acak Lengkap (RAL) dengan 4 perlakuan dan 3 ulangan. Perlakuan dalam penelitian ini yaitu P0 = Rumput Gajah 100%; P1 = Rumput Gajah 96% + *E. cottonii* 4%; P2 = Rumput Gajah 92% + *E. cottonii* 8%; dan P3 = Rumput Gajah 88% + *E. cottonii* 12%. Data yang dihasilkan dianalisis menggunakan ANOVA dan uji lanjut beda nyata terkecil. Hasil penelitian ini menunjukkan bahwa substitusi rumput laut *Eucheuma cottonii* dengan rumput gajah memberikan pengaruh sangat nyata ($P<0,01$) terhadap VFA total, proporsi asam asetat, propionat, butirat, dan estimasi produksi gas metana dan terdapat dosis terbaik pemberian rumput laut *Eucheuma cottonii* yaitu pada dosis 4% dalam menurunkan produksi gas metana walaupun diiringi dengan penurunan VFA total dan VFA parsial.

Kata kunci : *volatile fatty acid* (VFA), gas metana, rumput laut, rumput gajah, *in vitro*

ABSTRACT

EFFECT OF *Eucheuma cottonii* SEAWEED SUBSTITUTION IN ELEPHANT GRASS *(Pennisetum purpureum)* ON *IN VITRO* INDIVIDUAL VFA AND METHANE GAS PRODUCTION ESTIMATION

By

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The objective of this study was to determine effect of *Eucheuma cottonii* seaweed substitution in elephant grass on *in vitro* individual VFA and methane gas production estimation. This *in vitro* research was conducted in Laboratory of Nutrition of Indonesia Livestock Research Institute (ILRI), Ciawi, Bogor from October to November 2018. This research used Completely Randomized Design with 4 treatments and 3 replications. The treatments were P0 = Elephant Grass 100%; P1 = Elephant Grass 96% + *E. cottonii* 4%; P2 = Elephant Grass 92% + *E. cottonii* 8%; dan P3 = Elephant Grass 88% + *E. cottonii* 12%. The data obtained were analyzed using covariance and continued with the Least Significance Difference (LSD) test. The results showed that *Eucheuma cottonii* seaweed substitution level in elephant grass has highly significant effect (P<0,01) on total VFA, acetate, propionate, butyrate acid proportion and methane gas production estimation. Moreover, there is the best level of *Eucheuma cottonii* seaweed in decreasing methane gas production estimation on 4% level although total VFA and individual VFA are also decreasing.

Keywords : *volatile fatty acid* (VFA), methane gas, seaweed, elephant grass, *in vitro*