EVALUASI KECERNAAN RANSUM YANG MENDAPAT SUPLEMEN SELENIUM ORGANIK DAN ANORGANIK SECARA *IN VITRO* GAS TEST

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INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh suplementasi selenium organik dan anorganik terhadap kinetika produksi gas dan aktivitas enzim mikroba rumen secara *in vitro*. Rancangan perlakuan terdiri atas tiga perlakuan dan empat replikasi : T0 = ransum basal tanpa penambahan selenium (kontrol), T1 = kontrol dengan tambahan *sodium selenite* 0,3 mg/kg BK pakan (organik), T2 = kontrol dengan tambahan *selenium yeast* 0,3 mg/kg BK pakan (anorganik). Data hasil penelitian dianalisis menggunakan *analysis of variance* (ANOVA) dan diuji lanjut menggunakan *Duncan's new multiple range test* (DMRT) jika terdapat perbedaan yang nyata antar *mean*. Hasil penelitian menunjukkan bahwa penambahan suplementasi selenium dari bentuk yang berbeda menghasilkan produksi gas mencapai 80,03 mL/200mg BK. Produksi gas dari fraksi mudah larut (a) tidak terpengaruh oleh perlakuan suplementasi selenium. Produksi gas dari fraksi potensial terdegradasi (b) meningkat secara nyata (P<0,05) pada suplementasi selenium organik. Jumlah produksi gas dari fraksi mudah larut dan potensial terdegradasi (a+b) meningkat secara nyata (P<0,05) pada suplementasi selenium organik. Laju degradasi pakan (c) tidak terpengaruh oleh perlakuan penggunaan selenium sebagai suplementasi. Aktivitas enzim protease dan *carboxymethyl cellulose* (*CMC-ase*) menunjukkan perbedaan yang tidak signifikan sedangkan pada aktivitas enzim amilase dan protein enzim terdapat perbedaan yang nyata (P<0,05) pada pemberian perlakuan. Kesimpulan dari penelitian ini adalah pemberian selenium dapat meningkatkan total produksi gas dan dapat meningkatkan jumlah protein enzim dan menurunkan aktivitas enzim amilase, namun tidak ada pengaruh terhadap aktivitas enzim *CMC-ase* dan protease dalam rumen.

Kata kunci: Aktivitas enzim, bentuk selenium, cairan rumen, *in vitro* fermentasi, produksi gas

Evaluation of Diet Digestibility with Supplementation of Organic and Inorganic Selenium Using In Vitro Gas Test

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ABSTRACT

The research aimed to determine the effects of organic and inorganic selenium supplementation on the kinetics of gas production and rumen microbial enzyme activity in vitro. The treatment design consisted of four replications and three treatments: T0 = basal diet without selenium supplementation (control), T1 = control with sodium selenite supplementation at 0.3 mg/kg DM feed (organic), T2 = control with selenium yeast supplementation at 0.3 mg/kg DM feed (inorganic). The research data were analyzed using One-Way Analysis of Variance (ANOVA) and further tested using Duncan's New Multiple Range Test (DMRT) if significant differences were found among the means. The results of the research showed that supplementation with selenium from different forms resulted in gas production reaching 80.03 mL/200 mg DM. Gas production from the readily soluble fraction (a) was not affected by selenium supplementation. Gas production from the potentially degradable fraction (b) significantly increased ($P<0.05$) with organic selenium supplementation. The total gas production from the readily soluble and potentially degradable fractions (a+b) significantly increased ($P<0.05$) with organic selenium supplementation. Feed degradation rate (c) was not affected by selenium supplementation. Protease and Carboxymethyl cellulose (CMC-ase) enzyme activities showed no significant differences ($P>0.05$), while significant differences ($P<0.05$) were observed in amylase and protein enzyme activities with the treatments. The conclusion of this research is that the administration of selenium can increase total gas production and can decrease amylase enzyme activity and the amount of enzyme protein. However, it does not have an effect on Cmc-ase enzyme activity and protease activity.

Keywords: Enzyme activity, rumen fluid, in vitro fermentation, gas production, selenium forms