PENGARUH PENAMBAHAN TEPUNG KULIT BUAH NAGA MERAH (*Hylocereus polyrhizus*) DALAM RANSUM TERHADAP PARAMETER FERMENTASI RUMEN SECARA *IN VITRO*

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INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh penambahan tepung kulit buah naga merah (*Hylocereus polyrhizus*) dalam ransum terhadap parameter fermentasi rumen secara *in vitro*. Substrat pakan yang digunakan berupa rumput raja, *wheat bran pollard,* bungkil kedelai, serta bahan pakan tambahan berupa tepung kulit buah naga merah. Proporsi perbandingan hijauan dan konsentrat yang digunakan adalah 60:40 (%) dengan komposisi konsentrat terdiri dari *wheat bran pollard* dan bungkil kedelai sebesar 90:10 (%). Penambahan tepung kulit buah naga merah pada penelitian ini dilakukan sebanyak 0%, 1%, 2%, 3%, dan 4% dengan 6 kali pengulangan. Fermentasi rumen secara *in vitro* dilakukan dengan metode produksi gas secara *in vitro* dengan parameter yang diamati yaitu nilai pH, kadar amonia (NH_3), protein mikroba, populasi protozoa, dan *volatile fatty acids* (VFA). Data hasil penelitian dianalisis variansi (ANOVA) menggunakan rancangan acak lengkap pola searah. Apabila terdapat perbedaan yang nyata, maka dilakukan uji lanjut Duncan's new multiple range test. Hasil penelitian menunjukkan bahwa penambahan tepung kulit buah naga merah sebanyak 4% mampu menurunkan kadar NH_3 sebesar 34,72%. Penambahan tepung kulit buah naga merah sebanyak 2% hingga 4% dapat menurunkan populasi protozoa sebesar 42,90%, 50%, 53,70% secara berturut-turut. Penambahan tepung kulit buah naga merah hingga 4% dalam ransum tidak mempengaruhi nilai pH dan protein mikroba. Penambahan tepung kulit buah naga merah sebanyak 3% dalam ransum menyebabkan produksi VFA yang paling tinggi yaitu total VFA sebesar 98,77 mM, asam asetat sebesar 76,63 mM, asam propionat sebesar 13,69 mM, butirat sebesar 13,69 mM, serta rasio asetat:propionat sebesar 5,60. Kesimpulan dari penelitian ini adalah penambahan tepung kulit buah naga merah sebanyak 3% mampu menurunkan populasi protozoa dan meningkatkan produksi VFA di dalam rumen secara *in vitro* akan tetapi belum dapat menurunkan konsentrasi NH_3.

Kata kunci: *In vitro*, Parameter fermentasi rumen, Saponin, Tanin, Tepung kulit buah naga merah

THE EFFECT OF ADDITION OF RED DRAGON FRUIT PEEL POWDER (*Hylocereus polyrhizus*) IN RATION ON *IN VITRO* RUMEN FERMENTATION PARAMETERS

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ABSTRACT

This study was aimed to investigate the influence of adding red dragon (*Hylocereus polyrhizus*) fruit peel powder to the ration on *in vitro* rumen fermentation parameters. The feed substrates consisted of king grass, wheat bran pollard, soybean meal, and red dragon fruit peel powder as a feed additive. The ratio of forage to concentrate used in this study was 60:40 (%), with concentrate that consisted of a wheat bran pollard and soybean meal with ratio of 90:10 (%) relative to the total concentrate amount. The red dragon fruit peel powder was added in the diets at levels of 0%, 1%, 2%, 3%, and 4%, with six repetitions. *In vitro* rumen fermentation was investigated using the gas production method, with observed parameters including pH value, ammonia (NH_3) concentration, microbial protein, protozoa population, and volatile fatty acids (VFA). Data from the research were analyzed using one-way analysis of variance (ANOVA) with a completely randomized design. Duncan's new multiple range test was further used to analyzed data with significant different. Results indicated that the addition of 4% red dragon fruit peel powder reduced NH_3 concentration by 34.72%. The addition of red dragon fruit peel powder in the range of 2% to 4% can sequentially decrease the protozoa population by 42.90%, 50%, and 53.70%. Adding up to 4% red dragon fruit peel powder to the ration did not affect pH value and microbial protein. Inclusion of 3% red dragon fruit peel powder in the ration increased VFA production during rumen fermentation to the highest production, with a total VFA of 98.77 mM, acetic acid at 76.63 mM, propionic acid at 13.69 mM, butyric acid at 13.69 mM, and an acetic acid to propionic acid ratio of 5.60. It might be concluded that diet supplementation with 3% red dragon fruit peel powder reduced protozoa population and increased VFA production during in vitro rumen fermentation but did not have ability to decrease NH_3 concentration.

Keywords: *In vitro*, Red dragon fruit peel powder, Rumen fermentation parameters, Saponins, Tannins