

**PENGARUH PENGGUNAAN SINAMALDEHID TEPUNG DAUN KAYU
MANIS (*Cinnamomum burmanni* Ness ex Bl.) UNTUK PROTEKSI
PROTEIN TERHADAP PARAMETER FERMENTASI RUMEN
SECARA IN VITRO**

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INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh penambahan tepung daun kayu manis (*Cinnamomum burmanni* Ness ex Bl.) dalam ransum terhadap parameter fermentasi rumen yang dilakukan secara *in vitro*. Substrat pakan yang digunakan terdiri dari rumput gajah, *wheat bran pollard*, bungkil kedelai, dan bahan pakan tambahan berupa tepung daun kayu manis. Proporsi perbandingan hijauan dan konsentrat yang digunakan adalah 60%: 40% dengan komposisi konsentrat yaitu *wheat bran pollard* dan bungkil kedelai sebesar 90%: 10%. Penambahan tepung daun kayu manis dalam penelitian ini dilakukan sebanyak 0% tanpa penambahan tepung daun kayu manis, 1% setara dengan 16 mg/kg bk, 2% setara dengan 32 mg/kg BK, 3% setara dengan 48 mg/kg BK, dan 4% setara dengan 64 mg/kg dari BK pakan dengan 3 kali pengulangan. Kecernaan *in vitro* produksi gas dilakukan dengan metode Menke dan Steingass (1998) terhadap parameter fermentasi dengan variabel yang diamati, meliputi nilai pH, konsentrasi amonia (NH₃), protein mikroba, jumlah protozoa, dan total *volatile fatty acid* (VFA). Data hasil penelitian dianalisis variansi pola searah. Apabila terdapat perbedaan yang nyata, maka dilakukan uji lanjut Duncan's new multiple range test (DMRT). Hasil penelitian menunjukkan bahwa penambahan tepung daun kayu manis sebanyak 2% hingga 4% dapat menurunkan pH namun masih dalam kisaran normal pH dalam rumen, yaitu 6,72. Penurunan konsentrasi NH₃ terjadi dengan penambahan tepung daun kayu manis sebesar 4% sebesar 19,53%. Konsentrasi protein mikroba mengalami penurunan yang dibandingkan dengan kontrol, namun pada level perlakuan 2% konsentrasi protein mikroba paling tinggi diantara 3 level perlakuan lain yang mencapai 16,67%. Jumlah protozoa mengalami penurunan pada level perlakuan 1% tepung daun kayu manis sebesar 13,56%. Penambahan tepung daun kayu manis sebanyak 3% dalam ransum dapat meningkatkan produksi VFA, yang meliputi total VFA sebesar 81,66 mM, asam asetat sebesar 38,48 mM, asam propionat hingga 24,20 mM, asam butirrat mencapai 19,08 mM, dan rasio asetat: propionat sebesar 1,60. Kesimpulan dari penelitian ini adalah penambahan tepung daun kayu manis sebanyak 3% setara dengan sinamaldehyd 48 mg/kg BK mampu (P<0,05) menurunkan konsentrasi NH₃ dan jumlah protozoa, mempertahankan protein mikroba, serta dapat meningkatkan produksi VFA di dalam rumen secara *in vitro*.

Kata kunci: Daun kayu manis, *In vitro*, Parameter fermentasi rumen,
Proteksi protein, Sinamaldehyd

EFFECT OF ADDING CINNAMON LEAF FLOUR (*Cinnamomum burmanni* Ness ex Bl.) AS SOURCE OF CINNAMALDEHYDE FOR PROTEIN PROTECTION ON *IN VITRO* FERMENTATION PARAMETERS

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ABSTRACT

This study aims to determine the effect of the addition of cinnamon leaf flour (*Cinnamomum burmanni* Ness ex Bl.) in rations on rumen fermentation parameters carried out *in vitro*. The feed substrate used was consisted of elephant grass, wheat bran pollard, soybean meal, and additional feed ingredients in the form of cinnamon leaf flour. The proportion of forage and concentrate used was 60%: 40% with a concentrate composition of wheat bran pollard and soybean meal of 90%: 10%. The addition of cinnamon leaf meal in this study was carried out as much as 0%, 1%, 2%, 3%, and 4% was equivalent to 16 mg/kg, 32 mg/kg, 48 mg/kg, and 64 mg/kg of feed DM with 3 repetitions. *In vitro* digestibility of gas production was carried out by the method of Menke and Steingass (1998) on fermentation parameters with observed variables, including pH value, ammonia concentration (NH₃), microbial protein, number of protozoa, and total volatile fatty acid (VFA). Data from the study were analyzed for variance using one way pattern. If there were significant differences, Duncan's new multiple range test (DMRT) was conducted. The results showed that the addition of cinnamon leaf flour as much as 2% to 4% could reduce pH but it was still within the normal range of pH in the rumen, which is 6.72. The decrease in NH₃ concentration occurred with the addition of cinnamon leaf flour at 4% by 19.53%. Microbial protein concentration decreased compared to the control, but the 2% treatment level had the highest microbial protein concentration among the other 3 treatment levels which reached 16.67%. The number of protozoa decreased at the 1% treatment level of cinnamon leaf flour by 13.56%. The addition of 3% cinnamon leaf meal in the ration can increase VFA production, which includes total VFA of 81.66 mM, acetic acid of 38.48 mM, propionic acid up to 24.20 mM, butyric acid reaching 19.08 mM, and the ratio of acetate: propionate of 1.60. This study concluded that the addition of 3% cinnamon leaf flour was equivalent to 48 mg/kg BK of cinamaldehyde can ($P<0,05$) reduced the concentration of NH₃ and the number of protozoa, maintained microbial protein, and also can increase VFA production in the rumen *in vitro*.

Keywords: Cinnamon leaf, *In vitro*, Rumen fermentation parameters, Protein protection, Sinamaldehyde