

PENGARUH PENAMBAHAN MOLASES SEBAGAI SUMBER KARBOHIDRAT TERLARUT DAN LAMA INKUBASI TERHADAP KECERNAAN KONSENTRAT PROTEIN FERMENTASI SECARA *IN VITRO*

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INTISARI

Pakan fermentasi memiliki kelebihan dalam daya simpan, nilai nutrisi, serta nilai kecernaan. Fermentasi dipengaruhi oleh lama inkubasi dan sumber karbohidrat. Penelitian ini bertujuan untuk mengetahui pengaruh penambahan molases sebagai sumber karbohidrat terlarut dan lama inkubasi terhadap kecernaan *in vitro* konsentrat protein fermentasi. Konsentrat ditambahkan molases sebanyak 0, 2, dan 4% kemudian difermentasi selama 0, 7, dan 14 hari dengan masing-masing perlakuan mempunyai 3 ulangan. Proses fermentasi menggunakan starter bakteri asam laktat, ragi tempe, dan ragi tape. Semua perlakuan disimpan dalam keadaan tertutup dan diinkubasikan pada suhu kamar. Konsentrat fermentasi yang paling baik dilihat dari komposisi kimia, kemudian dilanjutkan pengujian kecernaan *in vitro* metode *Tilley and Terry*. Parameter yang diamati adalah komposisi kimia dan nilai kecernaan meliputi bahan kering, bahan organik, protein kasar, dan serat kasar. Data komposisi kimia dianalisis dengan pola faktorial, sedangkan data nilai kecernaan dianalisis dengan pola searah. Hasil yang berbeda nyata karena perlakuan, dilanjutkan uji *Duncan's Multiple Range Test* (DMRT). Hasil yang didapatkan adalah komposisi BK dan BO semakin menurun ketika diinkubasi dalam waktu yang lebih lama, namun terjadi peningkatan ketika ditambahkan kadar molases yang semakin tinggi. Terdapat penurunan PK, LK, dan SK terjadi pada inkubasi hari ke-14 akibat perombakan nutrisi untuk pertumbuhan mikrobia. Penambahan molases yang semakin banyak akan menurunkan kadar PK, LK, dan SK. Berdasarkan hasil uji nutrisi, konsentrat protein fermentasi terbaik adalah konsentrat yang diinkubasi selama 7 hari. Kecernaan BK, BO, dan SK konsentrat protein fermentasi hasil inkubasi selama 7 hari meningkat ($P < 0,05$) pada penambahan level molases yang semakin tinggi.

Kata kunci: Fermentasi, Bakteri asam laktat, Kecernaan, Waktu inkubasi

THE EFFECT OF MOLASSES AS SOLUBLE CARBOHYDRATE SOURCE AND INCUBATION TIME ON IN VITRO DIGESTIBILITY OF FERMENTED PROTEIN CONCENTRATE

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ABSTRACT

Fermented feed is high on nutritional value, shelf life, and digestibility. Fermentation is affected by incubation time and soluble carbohydrate source. This research aimed to find out the effects of molasses as soluble carbohydrate sources and incubation time towards *in vitro* digestibility of fermented protein concentrate. Concentrate were added with molasses as much as 0, 2, and 4% then fermented within 0, 7, and 14 days. The treatments had 3 times replication. All the concentrate were fermented by lactic acid bacterias, tempeh starter and ethanol fermented starter. Fermentation done at room temperature unaerobically. The best concentrate based on its chemical composition then analysed for Tilley and Terry *in vitro* digestibility. Therefore, the parameters observed were chemical composition, the digestibility value including dry matter, organic matter, crude protein, and crude fiber. Chemical composition data was analyzed by a completely randomized factorial design whereas *in vitro* digestibility data were analyzed by one way design. Significant result due to the treatment tested by Duncan Multiple Range Test (DMRT). The results showed that the dry and organic matter of fermented protein concentrate declined within longer incubation, however it is increased in line with higher molasses level. Crude protein, extract ether, and crude fiber declined in longer incubation due to microbes nutrient degradation activity. The best value on chemical composition is concentrate with 7 days incubation was checked for *in vitro* digestibility. The result suggested that addition of molasses were significantly ($P < 0,05$) increased the digestibility of dry matter, organic matter, crude protein, and crude fiber.

Key Words: Fermentation, Digestibility, Molasses, Incubation time