PENGGUNAAN PROTEIN SILASE IKAN RUCAH TERPROTEKSI SEBAGAI KOMPONEN PAKAN DOMBA

INTISARI

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Penelitian ini bertujuan mendapatkan metode ensilase ikan rucah dengan menggunakan gula kelapa pasta sebagai sumber karbohidrat dalam fermentasi alami, mengkaji pengaruh aras tanin kondensasi (daun kaliandra dan lamtoro) dalam memproteksi silase ikan rucah secara *in* vitro, serta pengaruh penggunaan silase ikan rucah terproteksi tanin kondensasi dalam pakan terhadap kinerja domba. Penelitian dilaksanakan dalam tiga tahap: (1) fermentasi alami campuran ikan rucah dengan gula kelapa pasta 0, 15, 30 dan 45%/kg ikan rucah giling dalam kantong plastik selama 24 hari secara *anaerob* pada suhu ruang (29º ± 1ºC); (2) optimasi pengikatan tanin kondensasi daun kaliandra dan lamtoro dengan *bovine serum albumin* (BSA) dan evaluasi proteksi protein silase ikan rucah dengan tanin kondensasi daun kaliandra dan lamtoro secara *in vitro*; (3) evaluasi proteksi protein silase ikan rucah dengan tanin kondensasi daun kaliandra dan lamtoro sebagai sumber protein dalam pakan domba. Hasil dari penelitian yaitu ikan rucah dapat diawetkan dengan dibuat silase menggunakan gula kelapa pasta sebanyak 15%/kg ikan rucah giling segar. Selama fermentasi alami pH menurun hingga stabil <4,5 dan meningkatkan kadar asam laktat, fraksi nitrogen, dan oksidasi lipid yang konstan setelah 16 hari fermentasi dan bebas bakteri patogen (*coliform, enterococci, staphylococci*). Tanin kondensasi daun kaliandra dan lamtoro optimum mengikat protein BSA berturut-turut 31,77 dan 26,25 g BSA/g tanin kondensasi. Penambahan tanin kondensasi daun kaliandra dan lamtoro pada protein silase ikan rucah secara *in vitro* menurunkan kadar amonia (P<0,01) tanpa mempengaruhi kadar protein mikroba (P>0,05), meningkatkan (P<0,01) kecernaan protein total (larut dalam pepsin HCl), kadar asam asetat dan propionat (P<0,01), dan menurunkan kecernaan bahan kering dan bahan organik (P<0,01). Aras tanin kondesasi daun kaliandra dan daun lamtoro terbaik dalam memproteksi silase ikan rucah beturut-turut 1,5% dan 2%/g protein silase ikan rucah. Protein silase ikan rucah yang diproteksi tanin kondensasi daun kaliandra (1,5%/g silase ikan rucah), daun lamtoro (2%/g silase ikan rucah) dalam pakan domba tidak berpengaruh (P>0,05) terhadap produk fermentasi dan mikrobia rumen, konsumsi nutrien, menurunkan kecernaan bahan kering (P<0,05), bahan organik (P=0,064), protein kasar (P<0,05), lemak kasar (P<0,01), tidak berpengaruh pada kecernaan serat kasar dan bahan ekstrak tanpa nitrogen, tanpa mempengaruhi perbedaan retensi nitrogen, efesiensi suplai nitrogen mikrobia, pertambahan bobot badan harian dan konversi pakan, serta diikuti dengan meningkatnya ekskresi nutrien pada feses.

Kata kunci: Silase, Ikan rucah, Tanin kondensasi, Kaliandra, Lamtoro, Domba

THE USE OF SILAGE PROTEIN OF PROTECTED TRASH FISH AS SHEEP FEED COMPONENT

ABSTRACT

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The objective of this research was to obtain ensilage method of trash fish using coconut sugar paste as carbohydrate source in natural fermentation, to evaluate the effect of condensed tannin proportions (calliandra and leucaena leaves) in protecting trash fish silage as estimated *in vitro*, and the effect of trash fish silage protected with condensed tannin in feed on sheep performance. Research was conducted in three stages: (1) anaerobic natural fermentation of trash fish combined with coconut sugar paste as much as 0, 15, 30 and 45%/kg ground trash fish inside plastic bag for 24 days in room temperature (29º ± 1ºC); (2) optimized binding of condensed tannin of calliandra and leucaena leaves using bovine serum albumin (BSA) and *in vitro* evaluating the protected silage protein of trash fish using condensed tannin of calliandra and leucaena leaves in vitro. (3) evaluating the protected protein silage of trash fish with condensed tannin of calliandra and leucaena leaves as the protein source of sheep feed. Research result showed that trash fish could be preserved through silage using coconut sugar paste as much as 15%/kg fresh ground trash fish. During natural fermentation, pH decreased to stable <4.5 and constant increase of lactic acid, nitrogen fraction and lipid oxidation after 16-day fermentation and free from pathogenic bacteria (coliform*, enterococci, staphylococci*). Condensed tannin of calliandra and leucaena leaves was optimum in binding BSA protein, namely 31.77 and 26.25 g BSA/g condensed tannin, respectively. Supplementing condensed tannin of calliandra and leucaena leaves in protein silage of trash fish *in vitro* method reduced ammonia level (P<0.01), without affecting microbial protein level (P>0.05), increased (P<0.01) total protein digestibility (soluble in HCl pepsin), acetic and propionic acid (P<0.01), and reduced dry matter and organic matter digestibility (P<0.01). The best condensed tannin level of calliandra and leucaena leaves in protecting trash fish silage was 1.5% and 2%/g trash fish silage protein, respectively. Trash fish protein silage protected with condensed tannin of calliandra leaves (1.5%/g trash fish silage), leucaena leaves (2%/g trash fish silage) in sheep feed did not affect (P>0.05) fermentation product and microbial rumen, nutrient intake, but reduced dry matter digestibility (P<0.05), organic matter (P=0.064), crude protein (P<0.05), crude fat (P<0.01), and did not affect crude fiber and nitrogen free extract digestibility, without affecting the different nitrogen retention, efficiency of microbial nitrogen supply, average daily gain and feed conversion, followed by the increase of fecal nutrient excretion.

Keywords: Silage, Trash fish, Condensed tannin, Calliandra, Leucaena, Sheep