

DAFTAR PUSTAKA

- Abd El-Ghani, A. A. (2004). Influence of diet supplementation with yeast culture (*Saccharomyces cerevisiae*) on performance of Zaraibi goats. *Small Ruminant Research*, 52(3), 223–229.
- Aka, R., & Natsir, S. (2014). Kecernaan bahan kering dan bahan organik campuran rumput mulato (*brachiaria hybrid. cv. mulato*) dengan jenis legum berbeda menggunakan cairan rumen sapi. *Jurnal Ilmu Dan Teknologi Peternakan Tropis*, 1(1), 16–22.
- Amaria, I. R. dan Tukiran. (2001). Biomassa *Saccharomyces cerevisiae* dari limbah buah dan sayur sebagai sumber vitamin B. Himpunan Makalah Seminar Nasional Teknologi Pangan, 138–150.
- Annisa. (2020). Karakteristik Cairan Rumen In-Vitro Dari Limbah Serai Wangi yang Diamoniasi dan Fermentasi dengan Starbio. Universitas Andalas.
- Antonius, A., Pazla, R., Putri, E. M., Negara, W., Laia, N., Ridla, M., Suharti, S., Jayanegara, A., Asmairicen, S., & Marlina, L. (2023). Effectiveness of herbal plants on rumen fermentation, methane gas emissions, in vitro nutrient digestibility, and population of protozoa. *Veterinary World*, 16(7), 1477.
- Ardani, L. R., Marlida, Y., Zain, M., Jamsari, J., & Fassah, D. M. (2023). Lactic acid bacteria and yeast strains isolated from fermented fish (Budu) identified as candidate ruminant probiotics based on in vitro rumen fermentation characteristics. *Veterinary World*, 16(2), 395.
- Armando, R. (2009). Memproduksi 15 minyak asiri berkualitas. Niaga Swadaya.
- Astuti, A., Agus, A., & Budhi, S. P. S. (2009). Pengaruh penggunaan high quality feed supplement terhadap konsumsi dan pencernaan nutrisi sapi perah awal laktasi. *Buletin Peternakan*, 33(2), 81–87.
- Astuti, W. D., Wiryawan, K. G., Wina, E., Widyastuti, Y., Suharti, S., & Ridwan, R. (2018). Effects of selected *Lactobacillus plantarum* as probiotic on in vitro ruminal fermentation and microbial population. *Pak J Nutr*, 17(3), 131–139.
- Badan Pusat Statistik. (2018). Luas Areal Dan Produksi Tanaman Komoditi Serai Wangi Di Kabupaten Pasaman.
- Baig, M. A., & Ali, S. (2005). Effect of cultivation conditions on invertase production by hyperproducing *Saccharomyces cerevisiae* isolates. *World Journal of Microbiology and Biotechnology*, 21, 487–492.

- Balt & Ozturk. (2006). Effect of Sulfur containing supplements on ruminal fermentation and microbial protein synthesis. *Research Journal of Anim. and Veterinary Sciences*, 1, 33–36.
- Camacho-Ruiz, L., Perez-Guerra, N., & Roses, R. P. (2003). Factors affecting the growth of *Saccharomyces cerevisiae* in batch culture and in solid state fermentation. *Electron J Environ Agric Food Chem*, 2(5), 531–542.
- Chairullisan, Z. (2018). Pengaruh Supplementasi Ekstrak Limbah Daun Serai Wangi (*Cymbopogon Nardus*) Terhadap Emisi Gas Metana (Ch₄) Dari Cairan Rumen Domba Secara In Vitro Skripsi.
- Chaucheyras, F., Fonty, G., Bertin, G., & Gouet, P. (1995). In vitro H₂ utilization by a ruminal acetogenic bacterium cultivated alone or in association with an archaea methanogen is stimulated by a probiotic strain of *Saccharomyces cerevisiae*. *Applied and Environmental Microbiology*, 61(9), 3466–3467.
- Chaucheyras, F., Fonty, G., Gouet, P., Bertin, G., & Salmon, J.-M. (1996). Effects of a strain of *Saccharomyces cerevisiae* (Levucell® SC), a microbial additive for ruminants, on lactate metabolism in vitro. *Canadian Journal of Microbiology*, 42(9), 927–933.
- Chaucheyras, F., Gérard, F., Philippe, G., Gérard, B., & Jean-Michel, S. (1996). Effects of a strain of *Saccharomyces cerevisiae* (Levucell® SC), a microbial additive for ruminants, on lactate metabolism in vitro. *Canadian Journal of Microbiology*, 42(9), 927–933.
- Chooi, O. H. (2008). Rempah ratus: khasiat makanan dan ubatan. Prin-AD SDN. BHD, Kuala Lumpur. Halaman, 202–203.
- Council, N. R. (2000). *Nutrient requirements of beef cattle.*, 7th rev. edn.(National Academy Press: Washington, DC).
- Council, N. R. (2001). *Nutrient requirements of dairy cattle: 2001.* National Academies Press.
- Daning, D. A. R., Hanim, C., Widyobroto, B. P., & Yusiati, L. M. (2020). Pemanfaatan Minyak Atsiri sebagai Rumen Modifier pada Sapi Perah. *Wartazoa*, 30(4), 189–200.
- Daning, D. R. A., Yusiati, L. M., Hanim, C., & Widyobroto, B. P. (2022). Dietary Supplementation of Galangal (*Alpinia galangal*) Essential Oil Affects Rumen Fermentation Pattern. *Advances in Animal and Veterinary Sciences*, 10(2), 323–334. <https://doi.org/10.17582/JOURNAL.AAVS/2022/10.2.323.334>
- De Toledo, L. G., Ramos, M. A. D. S., Spósito, L., Castilho, E. M., Pavan, F. R., Lopes, É. D. O., Zocolo, G. J., Silva, F. A. N., Soares, T. H., & Dos Santos, A. G. (2016). Essential oil of *Cymbopogon nardus* (L.) Rendle: A strategy to

- combat fungal infections caused by *Candida* species. *International Journal of Molecular Sciences*, 17(8), 1252.
- Dewhurst, R. J., Davies, D. R., & Merry, R. J. (2000). Microbial protein supply from the rumen. *Animal Feed Science and Technology*, 85(1–2), 1–21.
- Ding, G., Chang, Y., Zhao, L., Zhou, Z., Ren, L., & Meng, Q. (2014). Effect of *Saccharomyces cerevisiae* on alfalfa nutrient degradation characteristics and rumen microbial populations of steers fed diets with different concentrate-to-forage ratios. *Journal of Animal Science and Biotechnology*, 5, 1–9.
- Djazuli, M. (2011). Limbah serai wangi potensial sebagai pakan ternak. *Warta Penelitian Dan Pengembangan Pertanian*, 33, 10–12.
- Dwipana, I. K. B., Suryani, N. N., & Mahardika, I. G. (2019). Konsumsi Nutrien, Kecernaan Bahan Kering dan Bahan Organik Ransum Sapi Bali di Posko Penampungan Ternak Desa Nongan Kabupaten Karangasem. *Journal Peternakan Tropika*, 7, 59–569.
- Elghandour, M. M. Y., Tan, Z. L., Abu Hafsa, S. H., Adegbeye, M. J., Greiner, R., Ugbogu, E. A., Cedillo Monroy, J., & Salem, A. Z. M. (2020). *Saccharomyces cerevisiae* as a probiotic feed additive to non and pseudo-ruminant feeding: a review. *Journal of Applied Microbiology*, 128(3), 658–674.
- Elihasridas, E., & Ningrat, R. W. S. (2015). Degradasi in vitro Fraksi Serat Ransum Berbasis Limbah Jagung Amoniasi. *Jurnal Peternakan Indonesia (Indonesian Journal of Animal Science)*, 17(2), 116–122.
- Elihasridas, F. Agustin, & Erpomen. (2010). Suplementasi nutrisi terpadu pada ransum berbasis limbah pertanian untuk meningkatkan produktifitas dan kualitas daging ternak ruminansia. *Laporan Penelitian Hibah Bersaing Perguruan Tinggi Tahun Anggaran 2010. Fakultas Peternakan Universitas Andalas, Padang.*
- Elihasridas, Jamarun, N., Zain, M., & Marlida, Y. (2012). Suplementasi Mineral Sulfur Pada Ransum Tongkol Jagung Amoniasi Dan Pengaruhnya Terhadap Kecernaan Secara In Vitro. *Supplementation of Sulphur on Digestibility of ammoniated corn cobs ration in vitro. Jurnal Peternakan Indonesia, Juni, 14(2).*
- Emmyzar dan Muhammad, H. (2002). *Budidaya Serai Wangi (Cymbopogon nardus L).* Balai Penelitian Tanaman Rempah dan Obat.
- Fathul, F., & Wajizah, S. (2010). Penambahan Mikromineral Mn dan Cu dalam Ransum terhadap Aktivitas Biofermentasi Rumen Domba; Secara In Vitro. *Jurnal Ilmu Ternak Dan Veteriner*, 15(1), 9–15.
- Fievez, V., Babayemi, O. J., & Demeyer, D. (2005). Estimation of direct and indirect gas production in syringes: A tool to estimate short chain fatty acid production

that requires minimal laboratory facilities. *Animal Feed Science and Technology*, 123, 197–210.

Fondevila, M., BarriosUrdaneta, A., Balcells, J., & Castrillo, C. (2002). Gas production from straw incubated in vitro with different levels of purified carbohydrates. *Animal Feed Science and Technology*, 101(1–4), 1–15.

General Laboratory Procedure. (1966). Departement of Dairy Science, University of Wisconsin. (Vol. 2). Department of Dairy Science, University of Wisconsin.

Griswold, K. E., Apgar, G. A., Bouton, J., & Firkins, J. L. (2003). Effects of urea infusion and ruminal degradable protein concentration on microbial growth, digestibility, and fermentation in continuous culture. *Journal of Animal Science*, 81(1), 329–336.

Hanafi, N. D. (2004). *Perlakuan Silase Dan Amoniasi Daun Kelapa Sawit Sebagai Bahan Baku Pakan Domba*.

Hapsari, N. S., Harjanti, D. W., & Muktiani, A. (2018). Fermentabilitas pakan dengan imbuhan ekstrak daun Babadotan (*Ageratum conyzoides*) dan Jahe (*Zingiber officinale*) pada sapi perah secara in vitro. *Jurnal Agripet*, 18(1), 1–9.

He, B., Fan, Y., & Wang, H. (2022). Lactate uptake in the rumen and its contributions to subacute rumen acidosis of goats induced by high-grain diets. *Frontiers in Veterinary Science*, 9, 964027.

Hess, H. D., Kreuzer, M., Diaz, T. E., Lascano, C. E., Carulla, J. E., Soliva, C. R., & Machmüller, A. (2003). Saponin rich tropical fruits affect fermentation and methanogenesis in faunated and defaunated rumen fluid. *Animal Feed Science and Technology*, 109(1–4), 79–94.

Ibrahim, F. S., Babiker, E. E., Yousif, N. E., & El Tinay, A. H. (2005). Effect of fermentation on biochemical and sensory characteristics of sorghum flour supplemented with whey protein. *Food Chemistry*, 92(2), 285–292.

Ilhamzah. (2020). *Pengaruh Supplementasi Saccharomyces Cerevisiae Dan Mineral Kobalt (Co) Dalam Ransum Komplit Berbasis Empulur Batang Kelapa Sawit Amoniasi Terhadap Produksi Gas Metan, Populasi Protozoa Dan Biomassa Bakteri Secara In Vitro*. Skripsi. Fakultas Peternakan, Universitas Andalas.

Indrayanto, D. (2013). *Degradasi bahan kering, nilai pH dan produksi gas sistem rumen in vitro terhadap kulit buah kakao dengan lama fermentasi yang berbeda* [Skripsi]. Makassar: Universitas Hasanuddin.

Indriani, N., & Sutardi, T. R. (2013). Fermentasi limbah soun dengan menggunakan *Aspergillus niger* ditinjau dari kadar volatile fatty acid (VFA) total dan amonia (NH₃) secara in vitro. *Jurnal Ilmiah Peternakan*, 1(3), 804–812.

- Ismail, R. (2011). Kecernaan in vitro. <https://rismanismail2.com/2011/05/22/nilai-nilai-kecernan-part-4-#moe-310>
- Jayanegara, A., & Sofyan, A. (2008). Penentuan aktivitas biologis tanin beberapa hijauan secara in vitro menggunakan 'Hohenheim gas test' dengan polietilen glikol sebagai determinan. *Media Peternakan*, 31(1).
- Joo, J. W., Bae, G. S., Min, W. K., Choi, H. S., Maeng, W. J., Chung, Y. H., & Chang, M. B. (2005). Effect of protein sources on rumen microbial protein synthesis using rumen simulated continuous culture system. *Asian-Australasian Journal of Animal Sciences*, 18(3), 326–331.
- Jouany, J.-P. (1991). *Rumen Microbial Metabolism And Ruminant Digestion*. E-Book. Inra Edition.
- Jouany, J. P. (2001). Twenty years of research and now more relevant than ever the coming of age of yeast cultures in ruminant diets. Responding to a Changing Agricultural Landscape. Alltech's European, Middle Eastern and African Lecture Tour, 44–69.
- Kamel, H. E. M., Sekine, J., El-Waziry, A. M., & Yacout, M. H. M. (2004). Effect of *Saccharomyces cerevisiae* on the synchronization of organic matter and nitrogen degradation kinetics and microbial nitrogen synthesis in sheep fed Berseem hay (*Trifolium alexandrinum*). *Small Ruminant Research*, 52(3), 211–216.
- Karsli, M., & Russell, J. R. (2001). Effects of some dietary factors on ruminal microbial protein synthesis. *Turkish Journal of Veterinary & Animal Sciences*, 25(5), 681–686.
- Ketaren, I. S. (1985). *Pengantar teknologi minyak atsiri*. Staf Pengajar pada Fakultas Mekanisasi dan Teknologi Hasil Pertanian, Institut Pertanian Bogor. Balai Pustaka.
- Komisarczuk, S., & Durand, M. (1991). Effect of mineral on microbial metabolism. *Rumen Microbial Metabolism and Ruminant Digestion*. INRA Publ., Versailles.
- Kusnandar, F. (2010). *Kimia Pangan: Komposisi makro*. Edisi Pertama. Dian Rakyat. Jakarta.
- Laboratorium Nutrisi Ruminansia. (2022). *Fakultas Peternakan, Universitas Andalas*. Padang.
- Laboratorium Nutrisi Ruminansia. (2023). *Fakultas Peternakan, Universitas Andalas*. Padang.
- Lamid, M. (2010). Konsentrasi VFA dan Proporsi Molar Asetat, Propionat, Butirat Rumen Sapi Peranakan Ongole yang Diberi Jerami Padi Amoniasi, Jerami

Kedelai dan Jerami Padi Vfa Concentration And Acetate, Propionate, Butyrate Molar Proporsions Rumen Of Ongole Grade Cattle with Ammoniation Rice Straw, Soybean Straw and Rice Straw. *Veterinaria*, 3(3).

- Lassri, I. (2021). Analisis Usahatani Serai Wangi (*Cymbopogon nardus* L) Di Kota Solok, Sumatera Barat.
- Lila, Z. A., Mohammed, N., Yasui, T., Kurokawa, Y., Kanda, S., & Itabashi, H. (2004). Effects of a twin strain of *Saccharomyces cerevisiae* live cells on mixed ruminal microorganism fermentation in vitro. *Journal of Animal Science*, 82(6), 1847–1854.
- López, S. (2005). In Vitro And In Situ Techniques For Estimating Digestibility. Departmen of Animal Production, University of Leon, Spain.
- Lowry, O., Rosebrough, N., Farr, A. L., & Randall, R. (1951). Protein measurement with the Folin phenol reagent. *Journal of Biological Chemistry*, 193(1), 265–275.
- Lushchak, V. I. (2006). Budding yeast *Saccharomyces cerevisiae* as a model to study oxidative modification of proteins in eukaryotes. *Acta Biochimica Polonica*, 53(4), 679–684.
- Lynch, H. A., & Martin, S. A. (2002). Effects of *Saccharomyces cerevisiae* culture and *Saccharomyces cerevisiae* live cells on in vitro mixed ruminal microorganism fermentation. *Journal of Dairy Science*, 85(10), 2603–2608.
- Lynd, L. R., Weimer, P. J., Van Zyl, W. H., & Pretorius, I. S. (2002). Microbial cellulose utilization: fundamentals and biotechnology. *Microbiology and Molecular Biology Reviews*, 66(3), 506–577.
- Mackie, R. I., McSweeney, C. S., & Klieve, A. V. (2002). Microbial ecology of the ovine rumen. In *Sheep nutrition* (pp. 71–94). CABI Publishing Wallingford UK.
- Makkar, H. P. S., Blümmel, M., & Becker, K. (1995). Formation of complexes between polyvinyl pyrrolidones or polyethylene glycols and tannins, and their implication in gas production and true digestibility in in vitro techniques. *British Journal of Nutrition*, 73(6), 897–913.
- Malini, H., Mulyana, E., & Syaiful, F. (2022). Model Usahatani Integrasi Tanaman Sereh Wangi dan Ternak Sapi di Kabupaten Ogan Ilir. *Jurnal Social Economic of Agriculture*, 11(1), 1–11. <https://doi.org/10.26418/j.sea.v10i2.50738>
- Martin, O., Shialis, T., Lester, J., Scrimshaw, M., Boobis, A., & Voulvoulis, N. (2008). Testicular dysgenesis syndrome and the estrogen hypothesis: a quantitative meta-analysis. *Ciência & Saúde Coletiva*, 13, 1601–1618.

- Martins, A. de S., Prado, I. N. do, Zeoula, L. M., Branco, A. F., & Nascimento, W. G. do. (2000). Apparent digestibility of diets containing corn or cassava hull as energy source and cottonseed meal or yeast as protein source, in heifers. *R. Bras. Zootec.*, 29(1), 269–277.
- McDonald, P., Greenhalgh, J. F. D., Edwards, R., & Morgan, C. A. (2002). *Animal nutrition*. 6th edit. New York.
- Miller-Webster, T., Hoover, W. H., Holt, M., & Nocek, J. E. (2002). Influence of yeast culture on ruminal microbial metabolism in continuous culture. *Journal of Dairy Science*, 85(8), 2009–2014.
- Mitsumori, M., & Sun, W. (2008). Control of rumen microbial fermentation for mitigating methane emissions from the rumen. *Asian-Australasian Journal of Animal Sciences*, 21(1), 144–154.
- Moate, P. J., Chalupa, W., Jenkins, T. C., & Boston, R. C. (2004). A model to describe ruminal metabolism and intestinal absorption of long chain fatty acids. *Animal Feed Science and Technology*, 112(1–4), 79–105.
- Mohammed, S. F., Mahmood, F. A., & Abas, E. R. (2018). A review on effects of yeast (*Saccharomyces cerevisiae*) as feed additives in ruminants performance. *J. Entomol. Zool. Stud*, 6, 629–635.
- Nooriyan, S. M. E., & Rouzbehan, Y. (2017). Effect of essential oils of eucalyptus (*Eucalyptus globulus labill*) and angelica (*Heracleum persicum desf. ex fischer*) on in vitro ruminal fermentation, protozoal population and methane emission using afshari sheep inoculum.
- Nugroho, A. D., Muhtarudin, M., Erwanto, E., & Fathul, F. (2020). Pengaruh perlakuan fermentasi dan amoniasi kulit singkong terhadap nilai pencernaan bahan kering dan bahan organik ransum pada domba jantan. *Jurnal Riset Dan Inovasi Peternakan (Journal of Research and Innovation of Animals)*, 4(2), 119–125.
- Nuraliah, S., Purnomoadi, A., & Nuswantara, L. K. (2015). Konsentrasi Asam Lemak Terbang dan Glukosa Darah Domba Ekor Tipis yang Diberi Bungkil Kedelai Terproteksi Tanin. *J Urnal Veteriner*, 16(3), 448–456.
- Nurhaita. (2008). *Evaluasi Dan Pemanfaatan Daun Kelapa Sawit Dalam Ransum Ternak Ruminansia*. (Doctoral dissertasion, Universitas Andalas). Padang.
- Orskov, E. R. (1982). *Protein nutrition in ruminants*. Academic Press Inc.(London) Ltd.
- Pangesti, R. T. (2022). Efek Supplementasi Minyak Atsiri sebagai Aditif Pakan terhadap Fermentabilitas Rumen In Vitro: Studi Meta-analisis.

- Parakkasi, A. (1999). Ilmu nutrisi dan makanan ternak ruminan. Penerbit Universitas Indonesia.
- Partama, I. B. G. (2013). Nutrisi dan Pakan Ternak Ruminansia. Penerbit Udayana University Press.
- Pazla, R., Jamarun, N., Zain, M., Yanti, G., & Chandra, R. H. (2021). Quality evaluation of tithonia (*Tithonia diversifolia*) with fermentation using *Lactobacillus plantarum* and *Aspergillus ficuum* at different incubation times. *Biodiversitas Journal of Biological Diversity*, 22(9).
- Pazla, R., Zain, M., Ryanto, I., & Dona, A. (2018). Supplementation of minerals (phosphorus and sulfur) and *Saccharomyces cerevisiae* in a sheep diet based on a cocoa by-product. *Pakistan Journal of Nutrition*, 17(7), 329–335.
- Perry, A. (2003). Meningiomas. Dalam: Tavassoli FA & Devilee P, penyunt. *World Health Organization Classification of Tumors*. Lyon: IARC Press, 164–172.
- Puchala, R., Min, B. R., Goetsch, A. L., & Sahl, T. (2005). The effect of a condensed tannin-containing forage on methane emission by goats. *Journal of Animal Science*, 83(1), 182–186.
- Putri, E. M., Zain, M., Warly, L., & Hermon, H. (2019). In vitro evaluation of ruminant feed from West Sumatera based on chemical composition and content of rumen degradable and rumen undegradable proteins. *Veterinary World*, 12(9), 1478.
- Putri, E. M., Zain, M., Warly, L., & Hermon, H. (2021). Effects of rumen-degradable-to-undegradable protein ratio in ruminant diet on in vitro digestibility, rumen fermentation, and microbial protein synthesis. *Veterinary World*, 14(3), 640.
- Rahadi, S. (2018). Teknik Pembuatan Amoniasi Urea Jerami Padi Sebagai Pakan Ternak. Makalah Penerapan IPTEK Pemanfaatan Limbah Jerami Padi Melalui Teknologi Amoniasi Untuk Mengatasi Kekurangan Pakan Di Musim Kemarau, Di Desa Montong Are Kec. Kediri Kab. Lombok Barat, 24.
- Rambet, V., Umboh, J. F., Tulung, Y. L. R., & Kowel, Y. H. S. (2015). Kecernaan protein dan energi ransum broiler yang menggunakan tepung maggot (*Hermetia illucens*) sebagai pengganti tepung ikan. *Zootec*, 36(1), 13–22.
- Sakinah, D. (2005). Kajian suplementasi probiotik bermineral terhadap produksi VFA, NH₃, dan kecernaan zat makanan pada domba. Skripsi. Fakultas Peternakan. Institut Pertanian Bogor. Bogor.
- Santoso, D., & Samsi, M. (2017). Kecernaan Bahan Kering Dan Bahan Organik, Kadar Amonia Dan Vfa Totalin Vitro Suplemen Pakan Domba. *Prosiding Seminar Nasional LPPM Unsoed*, 7(1).

- Santoso, I. H. B. (2007). *Sereh Wangi, Bertanam dan Penyulingan*. Kanisius.
- Sayuti, N. (1989). *Ruminologi*. Fakultas Peternakan. Universitas Andalas, Padang.
- Shafura, P. O., Wizona, S. D., Zikri, W., & Ripani. (2022). Pengaruh Penggunaan Limbah Serai Wangi Amoniasi Sebagai Pengganti Rumput dalam Ransum Terhadap Konsumsi dan Kecernaan BK, BO Serta PBB pada Kambing Peranakan Etawa. <http://scholar.unand.ac.id/id/eprint/115104>
- Siregar, Z., Hasnudi, S., & Umar, S. I. (2006). Tim Jurusan Peternakan Fakultas Pertanian USU bekerjasama dengan PTPN IV dalam rangka membangun pabrik peternakan berbasis limbah sawit. Medan (Indonesia): USU.
- Sondakh, E. H. B., Yusiati, L. M., Hartadi, H., & Suryanto, E. (2012). Bungkil kelapa sumber medium chain fatty acids dalam pakan ruminansia sebagai agensia penurunan gas metan pada fermentasi rumen secara in vitro. *Agrinimal*, 2(2), 39–43.
- Steel, R. G. D., & Torrie, J. H. (1993). *Prinsip dan prosedur statistika*. PT. Gramedia Pustaka Utama, Jakarta, 748.
- Suharti, S., Kurnia, F. X. S., Pambudi, B., & Wiryawan, K. G. (2018). Fate of mimosine, concentration of blood metabolites and thyroid hormones of sheep fed with leucaena and glyricidia leaf meal. *Pakistan Journal of Nutrition*, 17(6), 268–273.
- Sulaswatty A, MS Rusli, H Abimanyu, & S Tursiloadi. (2019). Quo Vadis Minyak Serai Wangi dan Produk Turunannya. *LIPI Press*, 9(2).
- Sumarsih, S., & Tampoebolon, B. I. M. (2003). Pengaruh Aras Urea Dan Lama Pemeraman Yang Berbeda Terhadap Sifat Fisik Amoniasi Enceng Gondok (*Bichomia Crassipes*). *Jurnal Litbang Provinsi Jawa Tengah*, 1(2), 102–106.
- Supamong, C., Cherdthong, A., Wanapat, M., Chanjula, P., & Uriyapongson, S. (2019). Effects of sulfur levels in fermented total mixed ration containing fresh cassava root on feed utilization, rumen characteristics, microbial protein synthesis, and blood metabolites in Thai native beef cattle. *Animals*, 9(5), 261.
- Sutardi, T. (1980a). Ketahanan protein makanan terhadap degradasi oleh mikroba rumen dan manfaatnya bagi produktivitas ternak. *Buletin Makanan Ternak*, 5, 1–21.
- Sutardi, T. (1980b). *Landasan Ilmu Nutrisi Departemen Ilmu Makanan Ternak*. Institut Pertanian Bogor. Bogor.
- Tang, S. X., Tayo, G. O., Tan, Z. L., Sun, Z. H., Shen, L. X., Zhou, C. S., Xiao, W. J., Ren, G. P., Han, X. F., & Shen, S. B. (2008). Effects of yeast culture and

- fibrolytic enzyme supplementation on in vitro fermentation characteristics of low-quality cereal straws. *Journal of Animal Science*, 86(5), 1164–1172.
- Tavendale, M. H., Meagher, L. P., Pacheco, D., Walker, N., Attwood, G. T., & Sivakumaran, S. (2005). Methane production from in vitro rumen incubations with *Lotus pedunculatus* and *Medicago sativa*, and effects of extractable condensed tannin fractions on methanogenesis. *Animal Feed Science and Technology*, 123, 403–419.
- Throne, M., Bach, A., Ruiz-Moreno, M., Stern, M. D., & Linn, J. G. (2009). Effects of *Saccharomyces cerevisiae* on ruminal pH and microbial fermentation in dairy cows. Yeast supplementation on rumen fermentation. *Livestock Science*, 124(1–3), 261–265. <https://doi.org/10.1016/j.livsci.2009.02.007>
- Tilley, J. M. A., & Terry, dan R. A. (1963). A two-stage technique for the in vitro digestion of forage crops. *Grass and Forage Science*, 18(2), 104–111.
- Tropis, R. K. (2006). Strategi Suplementasi untuk Meningkatkan Efisiensi Sintesis Protein Mikroba Rumen pada Ternak Sapi yang Mengkonsumsi. *JITV*, 11(1).
- Uhi, H. T., Parakkasi, A., & Haryanto, B. (2006). Pengaruh suplemen katalitik terhadap karakteristik dan populasi mikroba rumen domba. *Media Peternakan*, 29(1).
- Usmiati, S., Nurdjannah, N., & Yuliani, S. (2005). Limbah penyulingan sereh wangi dan nilam sebagai insektisida pengusir lalat rumah (*Musca domestica*). *Jurnal Teknologi Industri Pertanian*, 15(1).
- Utama, C. S. N. (2011). Potensi probiotik bekatul. *Poultry Indonesia*, 6, 78–80.
- Utari Dewi, H., & Widodo, Y. (2016). Pengaruh Pemberian Ransum Berbasis Limbah Kelapa Sawit Fermentasi Terhadap Konsumsi Energi dan Energi Tercerna Pada Sapi Peranakan Ongole (PO) Effect of Ration Feeding Based on Waste Oil Palm Fermented to Energy Intake and Digestible Energy in Cattle Grade Ongole. In *Jurnal Ilmiah Peternakan Terpadu* (Vol. 4, Issue 2).
- Van Soest, P. J. (1982). *Nutritional ecology of the ruminant*. O & B Books. Inc., Corvallis, OR, 374.
- Van Soest, P. J. (1994). Function of the ruminant forestomach. *Nutritional Ecology of the Ruminant*, 230–252.
- Vogels, G. D., Hoppe, W. F., & Stumm, C. K. (1980). Association of methanogenic bacteria with rumen ciliates. *Applied and Environmental Microbiology*, 40(3), 608–612.
- Wijayakusuma, H. (2004). Atasi kanker dengan tanaman obat. Niaga Swadaya.

- Wina, E. (2000). Pemanfaatan ragi (yeast) sebagai pakan imbuhan untuk meningkatkan produktivitas ternak ruminansia. *Wartazoa*, 9(2), 50–56.
- Wohlt, J. E., Clark, J. H., & Blaisdell, F. S. (1976). Effect of sampling location, time, and method of concentration of ammonia nitrogen in rumen fluid. *Journal of Dairy Science*, 59(3), 459–464.
- Wole, B. Y., Manu, A. E., & Enawati, L. S. (2018). Fermentasi jerami kacang hijau menggunakan cairan rumen kambing dengan waktu yang berbeda terhadap konsentrasi NH₃ dan VFA secara in-vitro. *Jurnal Nukleus Peternakan*, 5(1), 1–6.
- Wu, H., Li, Y., Meng, Q., & Zhou, Z. (2021). Effect of high sulfur diet on rumen fermentation, microflora, and epithelial barrier function in steers. *Animals*, 11(9), 2545.
- Xia, C., Rahman, M. A. U., Yang, H., Shao, T., Qiu, Q., Su, H., & Cao, B. (2018). Effect of increased dietary crude protein levels on production performance, nitrogen utilisation, blood metabolites and ruminal fermentation of Holstein bulls. *Asian-Australasian Journal of Animal Sciences*, 31(10), 1643.
- Xu, C. C., Cai, Y., Zhang, J. G., & Ogawa, M. (2007). Fermentation quality and nutritive value of a total mixed ration silage containing coffee grounds at ten or twenty percent of dry matter. *Journal of Animal Science*, 85(4), 1024–1029.
- Zain, M. (2009). Fermentabilitas Dan Kecernaan In Vitro Serbuk Sabut Kelapa Yang Disuplementasi Dengan Beberapa Taraf Mineral Sulfur. *Jurnal Peternakan*, 6, 8–13.
- Zain, M., T. S. S. and N. Ramli. (2008). Effect of Defaunation and Supplementation Methionine Hydroxy Analogue and Branched Chain Amino Acid in Growing Sheep Diet Based on. *Pakistan Journal of Nutrition*, 7(6), 813–816.
- Zain, M., & Jamarun, N. (2010). Effect of sulfur supplementation on in vitro fermentability and degradability of ammoniated rice straw. *Pakistan Journal of Nutrition*, 9(5), 413–415.
- Zain, M., Jamarun, N., Arnim, A., Ningrat, R. W. S., & Herawati, R. (2011a). Effect of yeast (*Saccharomyces cerevisiae*) on fermentability, microbial population and digestibility of low quality roughage in vitro. *Archiva Zootechnica*, 14(4), 51.
- Zain, M., Jamarun, N., Arnim, A., Ningrat, R. W. S., & Herawati, R. (2011b). Effect of yeast (*Saccharomyces cerevisiae*) on fermentability, microbial population and digestibility of low quality roughage in vitro. *Archiva Zootechnica*, 14(4), 51.

- Zain, M., Jamarun, N., & Nurhaita. (2010). Effect of sulfur supplementation on in vitro fermentability and degradability of ammoniated rice straw. *Pakistan Journal of Nutrition*, 9(5), 413–415.
- Zain, M., Ningrat, R. W. S., Putri, E. M., & Makmur, M. (2019). The effects of leguminous supplementation on ammoniated rice straw based completed feed on nutrient digestibility on in vitro microbial protein synthesis. *IOP Conference Series: Earth and Environmental Science*, 287(1), 012018.

