



## DAFTAR PUSTAKA

- Abdollahi, M.R., V. Ravindra, and B. Svihus. 2013. Influence of grain type and feed form on performance, apparent metabolisable energy and ileal digestibility of nitrogen, starch, fat, calcium and phosphorus in broiler starters. *Anim. Feed Sci. Tech.* 186(3):193-203.
- Adibmoradi, M., B. Navidshad, J. Seifdavati, and M. Royan. 2006. Effect of dietary garlic meal on histological structure of small intestine in broiler chickens. *J. Poult. Sci.* 43(4):378-383.
- Adil, S., M.T. Banday, G.A. Bhat, S.D. Qureshi and S.A. Wani. 2011. Effect of supplemental organic acids on growth performance and gut microbial population of broiler chicken. *Livest. Res. Rural Dev.* 23 (1):1-8.
- Adriani, L., R.A. Ana., Y. An-An, M. Andi, and I. Nenden. 2014. Profil serum glutamate oxaloacetat transaminase (SGOT) and glutamate pyruvate transaminase (SGPT) level of broiler that was given noni juice (*Morinda citrifolia*) and palm sugar (*Arenga piata*). *Lucrări Științifice - Seria Zootehnie.* 62: 101-105.
- Agu, K.C., and P.N. Okolie. 2017. Proximate composition, phytochemical analysis, and in vitro antioxidant potentials of extracts of *Annona muricata* (Soursop). *Food Sci. Nutr.* 5(5):1029-1036.
- Agustina, R. 2006. Penggunaan ramuan herbal sebagai feed additive untuk meningkatkan performance broiler. Lokakarya Nasional Inovasi Teknologi dalam Mendukung Usaha ternak Unggas Berdaya Saing. Pusat Penelitian dan Pengembangan Peternakan. Bogor.
- Akhtar, F., M. Rabbani, K. Muhammad, M. Younus, A.A. Sheikh, R. Akhtar, J. Muhammad, and A. Rasool. 2016. Phylogenetic grouping of the pathogenic *e. coli* isolated from commercial broiler chicken in pakistan. *J. Anim. Plant Sci.* 26(5):1242-1246.
- Akond, M.A., S. Alam, S.M.R. Hassan, and M. Shirin. 2009. Antibiotic resistance of *Escherichia coli* isolated from poultry dan poultry environment of Bangladesh. *Int. J. Food Safe.* 11:19-23.
- Alara, O.R. and O.A. Olalere, 2016. A critical overview on the extraction of bioactive compounds from *Phaleria macrocarpa* (Thymelaceae). *Nat. Prod. Chem. Res.* 4(5):1-4.
- Altaf, M., B.J. Naveena, M. Venkateshwar, E.V. Kumar, and G. Reddy. 2006. Single step fermentation of starch to l(+) lactic acid by *Lactobacillus amylophilus* GV6 in SSF using inexpensive nitrogen sources to replace peptone and yeast extract – Optimization by RSM. *Process Biochem.* 41(2):465-472.
- Al-Beitawi, N.A., M.M. Shaker, K.N. El-Shuraydeh, and J. Blaha. 2017. Effect of nanoclay minerals on growth performance, internal organs dan blood biochemistry of broiler chickens compared to vaccines dan antibiotics. *J. Appl. Anim. Res.* 45(1): 543-549.



- Al-Fataftah, A. and A. Abdelqader. 2014. Effects of dietary *Bacillus subtilis* on heat-stressed broilers performance, intestinal morphology and microflora composition. *Anim. Feed Sci. Tech.* 198:279-285.
- Al-Ghorbani, M., R.V. Lakhsami, T. Prashanth, B.A. Bushra, and S.A. Khanum. 2013. *In vitro* antibacterial and antifungal evaluation of some benzophenone analogues. *Der Pharm. Chem.* 5(4): 269-273.
- Aliakbarpour, H.R., M. Chamani, G. Rahimi, A.A. Sadeghi, and D. Qujeq. 2012. The bacillus subtilis and lactic acid bacteria probiotics influences intestinal mucin gene expression, histomorphology and growth performance in broilers. *Asian-Austral. J. Anim. Sci.* 25(9):1285-1293.
- Allen, P.C., J. Lydon, and H. Danforth. 1997. Effects of components of *Artemisia annua* on coccidia infections in chickens. *Poult. Sci.* 76(8):1156-1163.
- Alves, A.C.S., R.M. Mainardes, and N.M. Khalil. 2016. Nanoencapsulation of gallic acid and evaluation of its cytotoxicity and antioxidant activity. *Mater. Sci. Eng.* 60:126-134.
- Amalia, Z. and W. Adisasmoro. 2017. Analysis of policy making factors on the prohibition of hormones and antibiotics use for feed as a public health protection. *J. Indon. Health Pol. Admin.* 2(2):14-19.
- Anes, U.C., H. Nettey, and J.V. Jen. 2017. Antimicrobial Activity and Characterization of *Annona muricata* Linn. (Annonaceae) Leaf- Loaded Chitosan Nanoparticle against Cancer Associated Microbes. *International J. Res. Stud. Microbiol. Biotechnol.* 2(1):15-21.
- Aranaz, I., M. Mengíbar, R. Harris, I. Paños, B. Miralles, and N. Acosta. 2009. Functional characterization of chitin and chitosan functional characterization of chitin and chitosan. *Curr. Chem. Biol.* 3(2):203-230.
- Badran, M.M., E.I. Taha, M.M. Tayel, and S.A. Al-Suwayeh. 2014. Ultra-fine self nanoemulsifying drug delivery system for transdermal delivery of meloxicam: dependency on the type of surfactants. *J. Mol. Liq.* 190:16-22.
- Bennasar, A., G. Luna, B. Cabrer and J. Lalucat, 2000. Rapid identification of *Salmonella typhimurium*, *S. enteritidis* dan *S. virchow* isolates by polymerase chain reaction based finger printing methods. *Int. Microbiol.* 3(1):31-38.
- Blaiszik, B.J., N.R. Sottos, and S.R. White. 2008. Nanocapsules for self-healing materials. *Compos. Sci. Technol.* 68(3):978-986.
- Bogucka, J. A. Dankowiakowska, G.E. Wenda, A. Sobolewska, J. Jankowski, M. Szpinda, and M. Bednarczyk. 2017. Performance and small intestine morphology and ultrastructure of male broilers injected *in ovo* with bioactive substances. *Anim. Sci.* 17(1):179195.
- Bogucka, J., A. Dankowiakowska, G.E. Wenda, A. Sobolewska, A. Szczerba, and M. Bednarczyk. 2016. Effects of prebiotics and synbiotics delivered *in ovo* on broiler small intestine histomorphology during the first days after hatching. *Folia Biol. (Kraków)*. 64(3):132-143.
- Booth, C. and J. O'Shea. 2002. Isolation and culture of intestinal epithelial cells. in: culture of epithelial cells. Second Edition. R. Ian Freshney and Mary G. Freshney Eds. Wiley-Liss, Inc.



- Borges, A., C. Ferreira, M.J. Saavedra, and M. Simões. 2013. Antibacterial activity dan mode of action of ferulic dan gallic acids against pathogenic bacteria. *Microb. Drug Resist.* 19(4):256-265.
- Bray, J.L. 2008. The Impacts on broiler performance and yield by removing antibiotic growth promoters and an evaluation of potential alternatives. Dissertation. Texas A&M University. Austin.
- Brown, E.M., M. Sadarangani, and B.B. Finlay. 2013. The role of the immune system in governing host-microbe interactions in the intestine. *Nat. Immunol.* 14(7):660–667.
- Buchanan, N.P., J.M. Hott, S.E. Cutlip, A.L. Rack, A. Asamer, and J.S. Moritz. 2008. The effects of a natural antibiotic alternative and a natural growth promoter feed additive on broiler performance and carcass quality. *J. Appl. Poult. Res.* 17(2):202-210.
- Bugnicourt, L. and C. Ladavière. 2016. Interests of chitosan nanoparticles ionically cross-linked with tripolyphosphate for biomedical applications. *Prog. Polym. Sci.* 60:1-17.
- Burkholder, K.M., K.L. Thompson, M.E. Einstein, T.J. Applegate, and J.A. Patterson. 2008. Influence of stressors on normal intestinal microbiota, intestinal morphology, dan susceptibility to *Salmonella enteritidis* colonization in broilers. *Poult. Sci.* 87(9):1734-1741.
- Cahyono, D., M.C. Padaga, and M.E. Sawitri. 2013. Microbiological qualities (TPC, *Enterobacteriaceae*, *Staphylococcus aureus*) of fresh milk from Subdistrict Krucil Probolinggo. *Jurnal Ilmu dan Teknologi Hasil Ternak.* 8(1):1-8.
- Carter, A.J., M.R. Adams, M.J. Woodward, and R.M.L. Ragione. 2009. Controll strategies for *Salmonella* colonization of poultry: The probiotic perspective. *Food Sci. Technol.* 5(9):103-115.
- Chambers, J.R. and J. Gong. 2011. The intestinal microbiota and its modulation for *Salmonella* control in chickens. *Food Res. Int.* 44:3149-3159.
- Chaudhry, Q., M. Scotter, J. Blackburn, B. Ross, L. Castle, R. Aitken, A. Boxall, and R. Watkins. 2008. Applications dan implications of nanotechnologies for the food sector. *Food Addit. Contam. Part A Chem. Anal. Control Expo Risk. Assess.* 25(3):241-258.
- Chim-anage P., V. Hirunvong, P. Sirirote, W. Malaphan, B. Yongsmith, S. Isariyodom, C. Tirawattanawanich, W. Chitanont and P. Talsook. 2008. Effect of feed supplementation of lactic acid bacteria on microbial changes in broiler intestine. *Kasetsart J.* 42:269-276.
- Choiri, Z., N.D. Dono, B. Ariyadi, C. Hanim, R. Martien, and Zuprizal. 2017. Effect of nano-encapsulation of noni (*Morinda citrifolia*) fruits extract on jejunal morphology and microbial populations in laying hens. *Pak. J. Nutr.* 17:34-38.
- Christaki, E., P. Florou-Paneria, I. Giannenas, M. Papazahariadoub, N. A. Botsoglou, and A. B. Spais. 2004. Effect of a mixture of herbal extracts on broiler chickens infected with *Eimeria tenella*. *Anim. Res.* 53(2):137-144.



- Classen, H.L. 2017. Diet energy and feed intake in chickens. *Anim. Feed Sci. Technol.* 233:13-21.
- Cowan, M.M. 1999. Plant products as antimicrobial agents. *Clin. Microbiol. Rev.* 12 (4):564-582.
- Craven, S.E., N.J. Stern, J.S. Bailey, and N.A. Cox. 2001. Incidence of *Clostridium perfringens* in broiler chickens and their environment during production and processing. *Avian Dis.* 45(4):887-896.
- Cushnie, T. and A.J. Lamb. 2016. Antimicrobial activity of flavonoids. *Int. J. Antimicrob. Ag.* 26(5):343-356.
- Dabur, R., A. Gupta, T.K. Mandal, D.D. Singh, V. Bajpai, A.M. Gurav, and G.S. Lavekar. 2007. Antimicrobial activity of some Indian medicinal plants. *Afr. J. Tradit. Complement. Altern. Med.* 4(3):313-318.
- Davis, W.W. and T.R. Stout. 2009. Disc plate method of microbiological antibiotic assay. *Appl. Env. Microbiol.* 22 (4): 666-670.
- Dewandari, K.T., S. Yuliani, and S. Yasni. 2013. Extraction and characterization nanoparticle red betel leaf (*Piper crocatum*). *Indon. J. Agr. Postharvest Res.* 10:58-65.
- Diaz-Sanchez, S., S. Moscoso, F. Solís de los Santos, A. Andino, and I. Hanning. 2015. Antibiotic use in poultry: a driving force for organic poultry production. *Food Protect. Trends.* 35(6):440-447.
- Dibner, J.J. and J.D. Richards. 2005. Antibiotic growth promoters in agriculture: History and mode of action. *Poult. Sci.* 84: 634-643.
- Dibner, J.J. and P. Buttin. 2002. Use of organic acids as a model to study the impact of gut microflora on nutrition and metabolism. *J. Appl. Poult. Res.* 11(4):453-463.
- Dono, N.D., 2012. Nutritional strategies to improve enteric health and growth performance of poultry in the post antibiotic era. Thesis. The College of Medical, Veterinary and Life Sciences. University of Glasgow. Glasgow.
- Du, W., S. Niu, Y. Xu, Z. Xu, and C. Fan. 2004. Antibacterial activity of chitosan tripolyphosphate nanoparticles loaded with various metal ions. *Carbohydr. Polym.* 75:385-389.
- Esfanjani, A.F. and S.M. Jafari. 2016. Biopolymer nano-particles dan natural nano-carriers for nano-encapsulation of phenolic compounds. *Colloids Surf. B Biointerfaces.* 146:532-543.
- Ezhilarasi, P.N., P. Karthik, N. Chhanwal, and C. Dananharamakrishnan. 2012. Nanoencapsulation techniques for food bioactive components: a review. *Food Bioprocess Tech.* 6(3):628-647.
- Fascina, V.B., J.R. Sartori, E. Gonzales, F.B.D. Carvalho, I.M.G.P.D. Souza, G.V. Polycarpo, A.C. Stradiotti, and V.C. Pelícia. 2012. Phytogenic additives and organic acids in broiler chicken diets. *Rav. Bras. Zootec.* 41:2189-2197.
- Feng, Y.N., J. Gong, H. Yu, Y.P. Jin, J. Zhu, and Y.M. Han. 2010. Identification of changes in the composition of ileal bacterial microbiota of broiler chickens infected with *Clostridium perfringens*. *Vet. Microbiol.* 140(1):116-121.



- Fotina, A.A., V.I. Fisinin, and P. F. Surai. 2013. Recent developments in usage of natural antioxidants to improve chicken meat production and quality. *Bulg J. Agric. Sci.* 19(5):889-896.
- Gao, J., H. Zhang, S. Yu, S. Wu, I. Yoon, J. Quigley, Y. Gao and G. Qi,. 2008. Effects of yeast culture in broiler diets on performance and immunomodulatory functions. *Poult. Sci.* 87(7):1377-1384.
- Garci'a, V., P.C. Gregori, F. Herna'ndez, M.D. Megi'as, and J. Madrid. 2007. Effect of formic acid and plant extracts on growth, nutrient digestibility, intestine mucosa morphology, and meat yield of broilers. *J. Appl. Poult. Res.* 16:555-562.
- Gavamukulya, Y., F. Aboi-Elella, F. Wamunyokoli, and H. AEI-Shemy. 2014. Phytochemical screening, anti-oxidant activity dan *in vitro* anticancer potential of ethanolic dan water leaves extracts of *Annona muricata* (Graviola). *Asian Pac. J. Trop. Med.* 7(1):S355-S363.
- Ghazanfari, S., M.A. Moradi, and M.M. Bradzardi. 2014. Intestinal morphology and microbiology of broiler chicken fed diets containing myrtle (*Myrtus communis*) essential oil supplementation. *Iranian J. Appl. Anim. Sci.* 4(3):549-554.
- Ghosh, G., and D. Khan. 2016. Chemotherapeutic impact of natural antioxidant flavonoids (*Gallic Acid*, *Rutin*, *Quercetin* and *Mannitol*) on pathogenic microbes and their synergistic effect. *Int. J. Sci. Technol. Res.* 5(7):243-256.
- Gopi, M., B. Pearlin, R. D. Kumar, M. Shanmathy and G. Prabakar. 2017. Role of nanoparticles in animal dan poultry nutrition: modes of action dan applications in formulating feed additives dan food processing. *Int. J. Pharmacol.* 13(7):724-731.
- Hernández, F., V. García, J. Madrid, J. Orengo, P. Catalá and M.D. Megías. 2006. Effect of formic acid on performance, digestibility, intestinal histomorphology and plasma metabolite levels of broiler chickens. *Br. Poult. Sci.* 47(1):50-56.
- Honyary, S., and F. Zahir. 2013. Effect of zeta potential on the properties of nano-drug delivery systems-a review (Part 2). *Trop. J. Pharm. Res.* 12(2):265-273.
- Hosseini, S., M. Chamani, A. Seidavi, A.A. Sadeghi, and Z. Ansari-Pirsareai. 2017. Effect on feeding Thymolina® powder in the carcass characteristics dan morphology of small intestine of Ross 308 broiler chickens. *Acta Scientiarum.* 39(1):45-50.
- Hsieh, F.M., C. Huang, T.F. Lin, Y.M. Chen, and J.C. Lin. 2008. Study of sodium tripolyphosphate-crosslinked chitosan beads entrapped with *Pseudomonas putida* for phenol degradation. *Process Biochem.* 43(1):83-92.
- Hu, X. and Y. Guo. 2008. Corticosterone administration alters small intestinal morphology and function of broiler chickens. *Asian-Austral. J. Anim. Sci.* 21(12):1773-1778.
- Huyghebaert, G., R. Ducatelle, and F.V. Immerseel. 2011. An update on alternatives to antimicrobial growth promoters for broilers. *Vet. J.* 187(2):182-188.



- Ibrahim, S. 2008. Association of small intestine measurements with body weight in broilers. Agripet. 8(2):42-46.
- Immerseel, F.V., L. De Zutter, K. Houf, F. Pasman, F. Haesebrouck, and R. Ducatelle. 2009. Strategies to control *Salmonella*, sp. in the broiler production chain. World Poultry Sci. J. 65:367-392.
- Iranshahi, M., R. Rezaee, H. Parhiz, A. Roohbaksh, and F. Soltani. 2015. Protective effects of flavonoids against microbes and toxins: The cases of hesperidin and hesperetin. Life Sci. 137:125-132.
- Jamroz, D., T. Wertelecki, M. Houszka, and C. Kamel. 2006. Influence of diet type on the inclusion of plant origin active substances on morphological and histochemical characteristics of the stomach and jejunum walls in chicken. J. Anim. Physiol. An. N. 90(5-6):255-268.
- Jang, I. S., Y.H. Ko, S.Y. Kang, and C.Y. Lee. 2007. Effect of a commercial essential oil on growth performance, digestive enzyme activity and intestinal microflora population in broiler chickens. Anim. Feed Sci. and Tech. 134(3-4):304-315.
- Jongbloed, A.W., Z. Mroz, , R. Van Der Weij-Jongbloed, and P.A. Kemme. 2000. The effects of microbial phytase, organic acids and their interaction in diets for growing pigs. Livest. Prod. Sci. 67:113-122.
- Justino, A.B., N.C. Miranda, R.R. Franco, M.M. Martins, N.M. da Silva, and F.S. Espindol. 2018. *Annona muricata* Linn. leaf as a source of antioxidant compounds with in vitro antidiabetic and inhibitory potential against  $\alpha$ -amylase,  $\alpha$ -glucosidase, lipase, non-enzymatic glycation and lipid peroxidation. Biomed. Pharma. 100:83-92.
- Kalsoom, U.M.E., M. Salim, T. Shahzadi, and A. Barlas, 2009. Growth performance and feed conversion ratio (fcr) in hybrid fish (*Catla catla* x *Labeo rohita*) fed on wheat bran, rice broken and blood meal. Pak. Vet. J. 29(2):55-58.
- Katouzian, I. and S.M. Jafari. 2016. Nano-encapsulation as a promising approach for targeted delivery and controlled release of vitamins. Trends Food Sci. Tech. 53:34-48.
- Kaur, S.P., R. Rao, A. Hussein, and S. Khatkar. 2011. Preparation and characterization of rivastigmine loaded chitosan nanoparticles. J. Pharm. Sci. Res. 3(5):1227-1232.
- Kavoi, B.M., D.W., Gakuya, P.N. Mbugua, and S.G., Kiama. 2016. Effects of dietary moringa oleifera leaf meal supplementation on chicken intestinal structure and growth performance. J. Morphol. Sci. 33(4):186-192.
- Kelly, D. and S. Conway. 2001. Genomics at work: The global gene response to enteric bacteria. Gut. 49(5):612-613.
- Kraehenbuhl, J.P. and M.R. Neutra. 1992. Molecular and cellular basis of immune protection of mucosal surfaces. Physiol. Rev. 72(4):853-879



- Krishnaiah, D., Bono, A., Sarbatly, R., Nithyanandam, R., and Anisuzzaman, S. M. 2015. Optimisation of spray drying operating conditions of *Morinda citrifolia* L. fruit extract using response surface methodology. J. King Saud University – Eng. Sci. 27(1):26-36.
- Krishnaiah, D., Bono, A., Sarbatly, R., Nithyanandam, R., dan Anisuzzaman, S. M. 2015. Optimisation of spray drying operating conditions of *Morinda citrifolia* L. fruit extract using response surface methodology. J. King Saud Univ. Eng. Sci. 1:26-36.
- Liang, J., H. Yan, X. Wang, Y. Zhou, X. Gao, P. Puligundla, and X. Wan. 2017. Encapsulation of epigallocatechin gallate in zein/chitosan nanoparticles for controlled applications in food systems. Food Chem. 231:19-24.
- Lovland, A. and M. Kaldhusdal. 2001. Severely impaired production performance in broiler flocks with high incidence of *Clostridium perfringens*-associated hepatitis. Avian Pathol. 30(1):73-81.
- Mahfudz, L.D., F.L. Maulana, U. Atmomarsono dan T.A. Sarjana. 2009. Karkas dan lemak abdominal ayam broiler yang diberi ampas bir dalam ransum. Seminar Nasional Kebangkitan Peternakan. 596-605.
- Markovic, R., D. Šefer, M. Krstic, and B. Petrujkic. 2009. Effect of different growth promoters on broiler performance and gut morphology. Arch. Med. Vet. 41:163-169.
- Maroof, K., T. Oka, M. Fujihara, and T. Bung. 2017. Effect of supplemental japanese pepper seed on the palatability of feed in chicks. J. Poult. Sci. 54(4):278-281.
- Martien, R., A. Adhyatmika, V. Farid dan D.P. Sari. 2012. Perkembangan teknologi nanopartikel dalam sistem penghantaran obat. Majalah Farmaseutik. 8:133-144.
- Melo, J.G dan A.S.A. Thiago. 2010. Antiproliterative Activity, Antioxidant Capacity dan Tannin content in plants of semi-Arid Northeastein Brazil. Molecules. 15(12):8534-8542.
- Miladinovic', D.L., B.S. Ilic', B.D. Kocic', V.M.C'iric', dan D.M. Nikolic. 2015. Antibacterial investigation of thyme essential oil and its main constituents in combination with Tetracycline. J. Med. Food. 18(8):935-937.
- Molla, B., A. Mesfin and D. Alemayehu, 2003. Multiple antimicrobial-resistant *Salmonella* sp. serotypes isolated from chicken carcasses and giblets in Debre Zeit and Addis Ababa Ethiopia. Ethiop. J. Health Dev. 17(2):131-149.
- Motiei, M., S. Kashanian, L.A. Lucia., and M. Khazaei. 2017. Intrinsic parameters for the synthesis and tuned properties of amphiphilic chitosan drug delivery nanocarriers. J. Control. Release. 260:213-225.
- Muthu, S. dan B. Durairaj. 2015. Evaluation of antioxidant and free radical scavenging activity of *Annona muricata*. Euro. J. Exp. Bio. 5(3):39-45.
- National Research Council. 1994. *Nutrient requirements of poultry 9<sup>th</sup> revised edition*. National Academy Press. Washington DC.



- Natsir, H., Hartutik, O. Sjofjan and E. Widodo. 2013. Effect of either powder or encapsulated form of garlic and *Phyllanthus niruri* L. mixture on broiler performances, intestinal characteristics and intestinal microflora. Int. J. Poult. Sci. 12(11):676-680.
- Nawwar, M., N. Ayoub, S. Hussein, A. Hashim, R. El-Sharawy, K. Wende, M. Harms, dan U. Lindequist. 2012. A flavonol triglycoside dan investigation of the antioxidant dan cell stimulating activities of *Annona muricata* Linn. Arch. Pharm. Res. 35(5):761-767.
- Neves, D. P., T. M. Banhazi, dan I. A. Naas. 2014. Feeding behaviour of broiler chickens : a review on the biomechanical characteristics. Braz. J. Poult. Sci. 16(2):1-16.
- Ningsih, N., S. Yasni., and S. Yuliani. 2017. Nanoparticle of red mangosteen peel extract synthesis and the functional characteristics of its encapsulated products. J. Teknol. dan Industri Pangan. 28(1):27-35.
- Nurhayati, T, D. Aryanti, dan Nurjanah. 2009. Kajian awal potensi ekstrak spons sebagai antioksidan. Jurnal Kelautan Nasional. 2(2):43-51.
- Osorio, E., Arango, GJ., Jimenez, N., Alzate F., Ruiz G., Gutierrez, D., Paco, MA., Gimenez, and A., Robledo, S. 2007. Antiprotozoal dan cytotoxic activities *in vitro* of Colombian Annonaceae. J. Ethnopharmacol. 111(3):630-635.
- Papadimitriou S., D. Bikaris, K. Avgoustakis, E. Karavas, and M. Georgarakis. 2008. Chitosan nanoparticles loaded with dorzolamide and pramipexole. Carbohyd. Polym. 73(1):44-54.
- Patel, M.J., N.M. Patel, R.B. Patel, and R.P. Patel. 2010. Formulation and evaluation of self-microemulsifying drug delivery system of lovastatin. Asian J. Pharm. Sci. 5:266-275.
- Pelicano, E.R.L., F.E.M. Bernal, R.L. Furlan, E.B. Malheiros, and M. Macari. 2005. Effect of environmental temperature and protein or energy restriction on body weight gain and broiler chicken bone growth. Arq. Bras. Med. Vet. Zootec. 57(3):353-360.
- Pinto, N.C.C., L.M. Campos, A.C.S. Evangelista , A.S.O. Lemos, T.P. Silva, R.C.N. Melo, C.C. de Lourenço, M.J. Salvador, A.C.M. Apolônio, E. Scio, dan R.L. Fabri. 2017. Antimicrobial *Annona muricata* L. (soursop) extract targets the cell membranes of Gram-positive dan Gram-negative bacteria. Ind. Crop. Prod. 107:332-340.
- Polewski, K., S. Kniat, and D. Ślawińska. 2002. Gallic acid, a natural antioxidant, in aqueous and micellar environment: spectroscopic studies. Curr. Top. Bioph. 26(2):217-227.
- Qi, L., Z. Xu, X. Jiang, C. Hu and X. Zou. 2009. Preparation and antibacterial activity of chitosan nanoparticles. Carbohyd. Res. 339:2693-2700.
- Racovita, S., S. Vasiliu, M. Popa, and C. Luca. 2009. Review: Polysaccharides based on micro- and nanoparticles obtained by ionic gelation and their applications as drug delivery systems. Rev. Roum. Chim. 54(9):709-718.



- Rahman, F.A., T. Haniastuti, dan T.W. Utami. 2017. Skrining fitotokimia dan aktivitas antibakteri ekstrak etanol daun sirsak (*Annona muricata* L.) pada *Streptococcus mutans* ATCC 35668. Majalah Kedokteran Gigi Indonesia. 3(1):1-7.
- Rahmi, E., D. Agustina, dan F. Jamin. 2014. Isolasi dan identifikasi genus *Salmonella* dan *Shigella* dari feses orangutan Sumatera (*Pongo abelii*) di Pusat Reintroduksi Orangutan, Jantho. Jurnal Medika Veterinaria. 8: 5-8.
- Ramírez-Mella, M., and O. Herndanez-Mendo. 2010. Review nanotechnology on animal production. Trop. Subtrop. Agro. 12:423-429.
- Rampino, A., M. Borgogna, P. Blasi, B. Bellich, and A. Cesàro. 2013. Chitosan nanoparticles: Preparation, size evolution and stability. Int. J. Pharm. 455(1):219-228.
- Ravindran, V. 2012. Advances and future directions in poultry nutrition. Korean J. Sci. 39(1):53-62.
- Rebh, A.Y., P. Kumar, Neeraj, and Dean. 2014. Effect of supplementation of ginger root powder in ration on performance of broilers. Europ. Acad. Res. 2(3):2286-4822.
- Rinttilä, T. and J. Apajalahti. 2013. Intestinal microbiota and metabolites-implications for broiler chickens health and performance. J. Appl. Poultry Res. 22(3):647-658.
- Salih, R., E. Tesfaye, B. Tamir, and H. Singh. 2016. Effect of feed restriction on production performance and carcass characteristics of Koekoek chicken in Ethiopia. Poult. Scie. J. 4(1):55-61.
- Samli, H.E., N. Senkoju, F. Koc, M. Kanter, and A. Agma. 2007. Effects of *Enterococcus faecium* and dried whey on broiler performance, gut histomorphology and intestinal microbiota. Arch. Anim. Nutr. 61(1):42-49.
- Samuel, K.G., J. Wang, H.Y. Yue, S.G. Wu, H.J. Zhang, Z.Y. Duan and G.H. Qi. 2017. Effects of dietary gallic acid supplementation on performance, antioxidant status, and jejunum intestinal morphology in broiler chicks. Poult. Sci. 96:2768-2775.
- Santos, F.B.O., B.W. Sheldon, A.A. Santos, and P.R. Ferket. 2008. Influence of housing system, grain type, and particle size on *Salmonella* colonization and shedding of broilers fed triticale or corn-soybean meal diets. Poult. Sci. 87(3):405-420.
- Santoso, J., S. Anwariyah, R. O. Rumiantin, A. P. Putri, N. Ukhy and Y. Yoshie-Stark. 2012. Phenol content, antioxidant activity and fibers profile of four tropical seagrasses from Indonesia. J. Coast. Dev. 15(2):189-196.
- Sari, D.P., T.S. Utami, R. Arbianti, and H. Hermansyah. 2018. The effect of centrifugation speed and Chitosan-Sodium Tripolyphosphate ratio toward the nanoencapsulation of Sambiloto (*Andrographis paniculata*) for the formulation of Hepatitis B drug. IOP Conf. Series: Earth and Environmental Science. 105: 1-6.



- Sasmita, Y., I.G.K. Suarjana, dan M.D. Rudyanto. 2014. Cemaran *Escherichia coli* pada daging broiler yang disimpan di showcase di swalayan di Denpasar. *Indonesia Medicus Veterinus*. 3:68-72.
- Servat-Medina L, A. González-Gómez, F. Reyes-Ortega, I.M.O. Sousa, N.C.A. Queiroz, P.M.W. Zago, M.P. Jorge, K.M. Monteiro, J.E. de Carvalho, J.S. Román, and M.A. Foglio. 2015. Chitosan-tripolyphosphate nanoparticles as *Arrabidaea chica* standardized extract carrier: synthesis, characterization, biocompatibility, and antiulcerogenic activity. *Int. J. Nanomedicine*. 10:3897-3909.
- Sklan, D. 2004. Early gut development: the interaction between feed, gut health and immunity. Page 9-31 in *Interfacing Immunity, Gut Health and Performance*. L.A. Tucker and J.A. Taylor-Pickard, ed. Nottingham University Press. England.
- Soeharsono. 2010. Probiotik: Basis Ilmiah Aplikasi dan Aspek Praktis. Widya Padjajaran. Bandung. Hal. 7-11.
- Soeparno. 2009. Ilmu dan Teknologi Daging. Cetakan ke-5. Gadjah Mada University Press. Yogyakarta.
- Solomon-Wisdom. G.O., S.C. Ugoh, and B. Mohammed. 2014. Phytochemical screening dan antimicrobial activities of *Annona muricata* (L) leaf extract. *Am. J. Biol. Chem. Pharm. Sci.* 2(1):1-7.
- Souza, J.R., J.P.A. Feitosa, N.M.P.S. Ricardo, M.T.S. Trevisan, H.C.B.D. Paula, C.M. Ulrich, and R.W. Owen. 2013. Spray-drying encapsulation of mangiferin using natural polymers. *Food Hydrocoll.* 33(1):10-18.
- Stanley, D., R.J. Hughes and R.J. Moore. 2014. Microbiota of the chicken gastrointestinal tract: influence on health, productivity and disease. *Appl. Microbiol. Biotechnol.* 98:4301-4310.
- Sugayana, M., M. Magela, and G. Rubalakshmi. 2016. New Era about treatment-evaluation of anticancer properties of evergreen medicinal plant *Annona muricata* (Graviola). *Int. J. Recent Sci. Res.* 7:10954-10956.
- Sugiharto, S. 2016. Role of nutraceuticals in gut health and growth performance of poultry. *J. Saudi Soc. Agric. Sci.* 15:99-111.
- Sulistyoningsih, M. 2014. Broiler production optimization of percentage of herbal supplementation through and carcass blood triglyceride levels. *Bioma*. 3:78-93.
- Sultan, A., T. Ullah, S. Khan, and R.U. Khan. 2015. Effect of organic acid supplementation on the performance and ileal microflora of broiler during finishing period. *Pak. J. Zool.* 47(3):635-639.
- Sumantri I., G.P. Hermawan dan H. Laksono. 2014. Ekstraksi daun sirsak (*Annona muricata* L.) menggunakan pelarut etanol. *J. Ilmiah Momentum*. 10(1):34-37.
- Sunarjono H. 2005. Sirsak dan Srikaya: Budidaya untuk Menghasilkan Buah Prima. Penebar Swadaya. Jakarta.



- Sundari, Zuprizal and R. Martien. 2014. The effect nanocapsule of turmeric extracts in rations on nutrient digestibility of broiler chickens. *Anim. Prod.* 16(2):107-113.
- Tiihonen, K., H. Kettunen, M.H.L. Bento, M. Saarinen, S. Lahtinen, A.C. Ouwehand, H. Schulze and N. Rautonen. 2010. *Br. Poult. Sci.* 51(3):381-392.
- Torok, V. A., R. J. Hughes, K. Ophel-Keller, M. Ali, and R. MacAlpine. 2009. Influence of different litter materials on cecal microbiota colonization in broiler chickens. *Poult. Sci.* 88(12):2474-2481.
- Uchegbu, R.I., K.U. Ukpai, I.C. Iwu and J.N. Akalazu. 2017. Evaluation of the Antimicrobial Activity and Chemical Composition of the Leaf Extract of *Annona muricata* Linn (Soursop) Grown in Eastern Nigeria. *Arch. Curr. Res. Int.* 7(1):1-7.
- Ur Rahman, S., S. Khan, N. Chand, U. Sadique, and R.U. Khan. 2017. *In vivo* effects of *Allium cepa* L. on the selected gut microflora and intestinal histomorphology in broiler. *Acta Histochem.* 119(5):446-450.
- Vidanarachchi, J.K., L.L. Mikkelsen, I. Sims, P.A. Iji, and M. Choct. 2005. Phytobiotics: alternatives to antibiotic growth promoters in monogastric animal feed. *Rec. Adv. Anim. Nutr.* 15:131-144.
- Viola, TH., A.M.L. Rebeiro., and Jr.A.M. Penz. 2005. Compensatory water consumption of broiler submitted to water restriction from 1 to 21 days of age. *Braz. J. Poult. Sci.* 7(4):243-245.
- Wachira, W.M., A. Shitandi, R. Ngure. 2011. Determination of the limit of detection of penicillin G residues in poultry meat using a low cost microbiological method. *Int. Food Res. J.* 18(3):1203-1208
- Wahju, J. 2004. Ilmu Nutrisi Unggas. Gadjah Mada University Press. Yogyakarta.
- Widyastuti, D.A., dan P. Rahayu. 2017. Antioxidant Capacity Comparison of Ethanolic Extract of Soursop (*Annona muricata* Linn.) Leaves and Seeds as Cancer Prevention Candidate. *Biol. Med. Nat. Prod. Chem.* 6(1):1-4.
- Wilson, K. J. and R. S. Beyer. 2000. Poultry nutrition information for the small flock. Kansas State University Agricultural Experiment Station and Cooperative Extension Service. Kansas.
- Windisch, W. and A. Kroismayr. 2006. The effects of phytobiotics on performance and gut function in monogastrics. Proceedings of the World nutrition forum: The future of animal nutrition. 85-90.
- Windisch, W., K. Schedle, C. Plitzner, and A. Kroismayr. 2007. Use of phytogenic products as feed additives for swine and poultry. *J. Anim. Sci.* 86(14):E140–E148.
- Xia, M.S., C.H. Hu, and Z.R. Xu. 2004. Effects of copper-bearing montmorillonite on growth performance, digestive enzyme activities, and intestinal microflora and morphology of male broilers. *Poult. Sci.* 83(11):1868-1875.
- Xu, Z.R., C.H. Hu, M.S. Xia, X.A. Zhan, and M.Q. Wang. 2003. Effects of dietary fructooligosaccharide on digestive enzyme activities, intestinal microflora and morphology of male broilers. *Poult. Sci.* 82(6):1030-1036.



- Yang, Y., P.A. Iji, and M. Choct. 2009. Dietary modulation of gut microflora in broiler chickens: A Review of the role of six kinds of alternatives to in-feed antibiotics. *World Poult. Sci. J.* 65:97-114.
- Yegani, M. and D.R. Korver. 2008. Factors affecting intestinal health in poultry. *Journal of Poultry Science.* 87:2052-2063.
- Yen, G., P. Duh, and H. Tsai. 2002. Antioxidant and pro-oxidant properties of ascorbic acid and gallic acid. *Food Chem.* 79:307-313.
- Yin, G. and S. An-shan. 2004. Effects of different oligosaccharides on performance and availability of nutrients in broilers. *J. Northe. Agr. Univ.* 11:37-41.
- Yitnosumarto, S. 1993. *Percobaan Perancangan, Analisis dan Interpretasinya*. PT. Gramedia Pustaka Utama, Jakarta.
- Zhang, X.H., Z.Y. Sun, F.L. Cao, H. Ahmad, X.H. Yang, L.G. Zhao and T. Wang. 2015. Effects of dietary supplementation with fermented ginkgo leaves on antioxidant capacity, intestinal morphology and microbial ecology in broiler chicks. *Br. Poult. Sci.* 56(3):370-380.
- Zhau, L., L. Shi, Z. Zhang, J. Chen, D. Shi, J. Yang, and Z. Tang. 2011. Preparation and application of chitosan nanoparticles and nanofibers. *Braz. J. Chem. Eng.* 28(3):353-362.