

DAFTAR PUSTAKA

- Abdel-Latif, M. A., El-Hamid, H. S. A., Emam, M., Noreldin, A. E., Helmy, Y. A., El-Far, A. H., & Elbestawy, A. R. (2024). Dietary Lysozyme and Avilamycin Modulate Gut Health, Immunity, and Growth Rate in Broilers. *BMC Veterinary Research*, 20(1), 28.
- Abdul-Aziz, T., Fletcher, O. J., & Barner, H.J. (2016). *Avian Histopathology 4th edition*. Mafisom : Omnipress.
- Al-Homidan, I., Alsuyayhi, A., Abou-Emera, O., Ibrahim, Z., & Fathi, M. (2026). Effects of Water-Delivered Probiotics on Performance, Carcass Traits, Immunity, Blood Biochemistry, and Ileal Morphology of Broilers Reared at High Stocking Density Under Warm Ambient Temperature. *Animals*, 16(2), 328.
- Alrahal, H. H., Al-Tae, S. K., & Sultan, G. A. (2024). Semi Quantitatively Analysis of Nutritional Disturbances Lesions in The Liver and Breast Muscle Of Broiler During The Starter Period. *Iraqi J Vet Sci*, 38(3), 485-92.
- Al-sabaawy, H. B., Alhially, A. A., S Mostafa, E., & M Al-Hamadany, S. (2024). The Effects of Stress Exposure on One Day Aged Broiler Chicken: A pathological Study. *Egyptian Journal of Veterinary Sciences*, 55(5), 1279-1285.
- Anastasya, J., Lamid, M., Hastutiek, P., Safitri, E., Al-Arif, M. A., & Plumeriastuti, H. (2025). Jurnal Agro Veteriner (Agrovet). *Jurnal Agro Veteriner (Agrovet)*, 8(2), 44-52.
- Aratboni, H. A., Olvera, C., & Ayala, M. (2024). Nanoformulations for lysozyme-based additives in animal feed: An alternative to fight antibiotic resistance spread. *Nanotechnology Reviews*, 13(1), 20240015.
- Aratboni, H. A., Olvera, C., & Ayala, M. (2024). Nanoformulations for lysozyme-based additives in animal feed: An alternative to fight antibiotic resistance spread. *Nanotechnology Reviews*, 13.
- Ashmawy, E. S. (2024). Effects of Dietary Lysozyme Supplementation on Performance, Carcass Traits, Immunity and Gut Microbial of Broiler Chickens. *Egyptian Journal of Nutrition and Feeds*, 27(1), 89-96.
- Assis, S., Leandro, N., Arnhold, E., Café, M., Carvalho, F., Stringhini, J., & Santos, R. (2021). Relative weight and length of digestive tract and intestinal histomorphometric measurements of slow-growing broilers of different genotypes. *Semina-ciencias Agrarias*, 22(01), 319-334.
- Ayalew, H., Zhang, H., Wang, J., Wu, S., Qiu, K., Qi, G., Tekeste A., Wassie, T., & Chanie, D. (2022). Potential feed additives as antibiotic alternatives in broiler production. *Frontiers in Veterinary Science*, 9, 916473.

- Ayesha, B., Mainde, U. P., Nandeshwar, N. C., Charjan, R. Y., Bhole, P. D., & Singh, A. (2024). Histomorphological and Histochemical Studies of Intestine in Normal and *Saccharomyces Cerevisiae* Fermented Product Fed Broiler. *International Journal of Veterinary Sciences and Animal Husbandary*, 11(3): 84-88
- Bai, Y., Wang, W., Wang, B., & Chen, Q. (2025). Modifying hen egg-white lysozyme into amyloid fibrils with enriched β -sheets improved antimicrobial activity against foodborne pathogenic bacteria. *International Journal of Biological Macromolecules*, 319, 145641.
- Bastamy, M., Raheel, I., Elbestawy, A., Diab, M., Hammad, E., Elebeedy, L., & Orabi, A. (2024). Postbiotic, anti-inflammatory, and immunomodulatory effects of aqueous microbial lysozyme in broiler chickens. *Animal Biotechnology*, 35(1), 2309955.
- Bungsrissawat, P., Tunseng, S., Kiatsomphob, S., Prasongsook, S., Bunchasak, C., & Rakangthong, C. (2025). Comparing commercial and slow-growing broilers in Thailand: growth, carcass quality, economics, and environmental perspective. *Poultry Science*, 104(4), 104880.
- Chen, L., Peng, W., Wang, T., Ma, S., Wang, X., Dai, B., Ruiqiang, Z., Yang, C., & Wu, Y. (2025). Effects of dietary lysozyme supplementation on growth performance, intestinal morphology, immune function, antioxidant capacity, and gut microbiota in broilers. *Poultry Science*, 104 (11), 105741.
- Dameanti, F. N. A. E. P., Dacosta, A. O., Adrenalin, S. L., Fatmawati, M., Permata, F. S., Siswanto, H. P., & Ariyanti, T. (2023). A comparative study on histopathological features of duodenum, jejunum, and ileum from broiler chicken with avian pathogenic *Escherichia coli* infection. *Journal of the Indonesian Tropical Animal Agriculture* 48(3): 194-207.
- Dang, D. X., Chung, Y. H., & Kim, I. H. (2022). *E. coli*-expressed human lysozyme supplementation improves growth performance, apparent nutrient digestibility, and fecal microbiota in weaning pigs. *Livestock Science*, 263, 105004.
- de Almeida Figueira, A., Salles Dias, T., Alves Costa, G., Lima da Costa Abreu, D., dos Santos Medeiros, L., & Léo de Almeida Pereira, V. (2025). Phenotypic and Genomic Assessment of *Antimicrobial resistance* and Virulence Factors Determinants in *Salmonella* Heidelberg Isolated from Broiler Chickens. *Animals*, 15(7), 1003.
- Delbue, S., Pariani, E., Parapini, S., Galli, C., Basilico, N., D'Alessandro, S., ... & Grisenti, P. (2023). Heat-treated lysozyme hydrochloride: A study on its structural modifications and anti-SARS-CoV-2 activity. *Molecules*, 28(6), 2848.
- Dev, K., Singh, J., Mir, N. A., Biswas, A., Sonowal, J., Kant, R., ... & Tiwari, A. K. (2022). Inflection in nutrient transporter genes leads to potential changes in

small intestine histomorphology with improved nutrient retention in chicken under dietary synbiotic supplementation: Synbiotic supplementation and nutrient transporter expression. *Letters In Animal Biology*, 2(1), 23-31.

Dong, H. L., Wu, X. Y., Wang, F. Y., Chen, H. X., Feng, S. L., Zhou, C. Y., & Si, L. F. (2024). Mechanism of Activation Of TLR4/NF-Kb/NLRP3 Signaling Pathway Induced By Heat Stress Disrupting The Filtration Barrier In Broiler. *BMC Veterinary Research*, 20(1), 584.

Dong, Y., Zheng, Y., Liu, H., Wang, Y., Cui, J., Wu, Y., & Li, J. (2025). Effects of high stocking density on the growth performance, intestinal health and bile salts composition of broiler chickens. *Frontiers in Microbiology*, 16, 1542059.

El-Fateh, M., Bilal, M., & Zhao, X. (2024). Effect of antibiotic growth promoters (AGPs) on feed conversion ratio (FCR) of broiler chickens: A meta-analysis. *Poultry science*, 103(12), 104472.

Elkhaiat, I. A., El-Kassas, S., Abdo, S. E., El-Naggar, K., Shalaby, H. K., Nofal, R. Y., ... & Lestingi, A. (2025). Leverage of lysozyme dietary supplementation on gut health, hematological, antioxidant, and immune parameters in different plumage-colors Japanese quails. *Poultry Science*, 104(1), 104474.

El-Ratel, I. T., EL-Deep, M. H., Alharbi, N. K., Alyoubi, W. A., El-Kholy, K. H., Badawy, A. A., ... & Fouda, S. F. (2024). Lysozyme as an alternative to antibiotics improves growth, antioxidants status, immunity, and intestinal bacteria in broiler chickens during the fattening period. *Archives Animal Breeding*, 67(2), 185-195.

Elzaher, H. A., Ibrahim, Z. A., Ahmed, S. A., Salah, A. S., Osman, A., Swelum, A. A., ... & Abd El-Hack, M. E. (2023). Growth, carcass criteria, and blood biochemical parameters of growing quails fed *Arthrospira platensis* as a feed additive. *Poultry science*, 102(12), 103205.

Ferraboschi, P., Ciceri, S., & Grisenti, P. (2021). Applications of lysozyme, an innate immune defense factor, as an alternative antibiotic. *Antibiotics*, 10(12), 1534.

Freitas, R., Calderano, A., Oliveira, C., Neto, M., & Genova, J. (2025). Combined analysis of multiple linear regression and principal components for predicting performance indicators in broiler chickens under commercial conditions. *Poultry Science*, 104 (11), 105728.

Goo, D., Kim, J. H., Park, G. H., Delos Reyes, J. B., & Kil, D. Y. (2019). Effect of heat stress and stocking density on growth performance, breast meat quality, and intestinal barrier function in broiler chickens. *Animals*, 9(3), 107.

Habib, I., Mohamed, M. Y. I., Lakshmi, G. B., Ghazawi, A., Khan, M., & Khalifa, H. O. (2025). Characterizing *antimicrobial resistance* and plasmidome

diversity in *Escherichia coli* from imported frozen broiler chicken in the United Arab Emirates. *Frontiers in Microbiology*, 16, 1590906.

- Habotta, O. A., Wang, X., Othman, H., Aljali, A. A., Gewaily, M., Dawood, M., & Abdeen, A. (2022). Selenium-Enriched Yeast Modulates the Metal Bioaccumulation, Oxidant Status, And Inflammation In Copper-Stressed Broiler Chickens. *Frontiers in Pharmacology*, 13, 1026199.
- Hassan, R. A., Eid, Y. Z., & Mousa, M. A. M. (2025). Exogenous lysozyme as an alternative to antibiotics improves growth performance and small intestinal morphology of broiler chickens. *Journal of King Abdulaziz University: Meteorology, Environment & Arid Land Agriculture Sciences*, 34(1), 186.
- Huang, J., Guo, F., Abbas, W., Hu, Z., Liu, L., Qiao, J., & Wang, Z. (2024). Effects of microencapsulated essential oils and organic acids preparation on growth performance, slaughter characteristics, nutrient digestibility and intestinal microenvironment of broiler chickens. *Poultry science*, 103(5), 103655.
- Kerek, Á., Szabó, Á., & Jerzsele, Á. (2025). Amoxicillin resistance: an in vivo study on the effects of an approved formulation on antibiotic resistance in broiler chickens. *Animals*, 15(13), 1944.
- Khamas, W., & Rutllant, J. (2024). *Anatomy and Histology of the Domestic Chicken*. New Jersey : John Wiley & Sons.
- Khorshidian, N., Khanniri, E., Koushki, M. R., Sohrabvandi, S., & Yousefi, M. (2022). An overview of antimicrobial activity of lysozyme and its functionality in cheese. *Frontiers in nutrition*, 9, 833618.
- Khubeiz, M. M., Algriany, O. A., Elmgirbi, W. M., & Bilkhayr GhR, S. A. (2024). Effect of Dietary Supplementation of Coriander Seed (*Coriandrum Sativum* L.) on Gut Morphology in Broiler Chickens. *Online J. Anim. Feed Res*, 14(3), 204-210.
- Kpomasse, C. C., Oso, O. M., Lawal, K. O., & Oke, O. E. (2023). Juvenile growth, thermotolerance and gut histomorphology of broiler chickens fed *Curcuma longa* under hot-humid environments. *Heliyon*, 9(2).
- Larsen, I. S., Jensen, B. A., Bonazzi, E., Choi, B. S., Kristensen, N. N., Schmidt, E. G. W., Sünderhauf, A., Morin, L., Olsen, P., Hansen, L., Schröder, T., Sina, C., Chassaing, B., & Marette, A. (2021). Fungal lysozyme leverages the gut microbiota to curb DSS-induced colitis. *Gut Microbes*, 13(1), 1988836.
- Laudadio, V., Passantino, L., Perillo, A., Lopresti, G., Passantino, A., Khan, R., & Tufarelli, V. (2011). Productive performance and histological features of intestinal mukosa of broiler chickens fed different dietary protein levels. *Poultry science*, 91 1, 265-70.
- Liang, Q., Yuan, M., Xu, L., Lio, E., Zhang, F., Mou, H., & Secundo, F. (2022). Application of enzymes as a feed additive in aquaculture. *Marine Life Science & Technology*, 4, 208 - 221.

- Liao, X., Shao, Y., Sun, G., Yang, Y., Zhang, L., Guo, Y., Luo, X., & Lu, L. (2020). The relationship among gut microbiota, short-chain fatty acids, and intestinal morphology of growing and healthy broilers. *Poultry Science*, *99*, 5883 - 5895.
- Lin, J., Comi, M., Vera, P., Alessandro, A., Qiu, K., Wang, J., & Zhang, H. J. (2023). Effects of *Saccharomyces cerevisiae* hydrolysate on growth performance, immunity function, and intestinal health in broilers. *Poultry Science*, *102*(1), 102237.
- Liu, Y. L., Ding, K. N., Shen, X. L., Liu, H. X., Zhang, Y. A., Liu, Y. Q., & Tang, L. P. (2022). Chronic Heat Stress Promotes Liver Inflammation in Broilers Via Enhancing NF-Kb and NLRP3 Signaling Pathway. *BMC veterinary research*, *18*(1), 289.
- Love, M., Coombes, D., Manners, S., Abeysekera, G., Billington, C., & Dobson, R. (2021). The Molecular Basis for *Escherichia coli* O157:H7 Phage FAHEc1 Endolysin Function and Protein Engineering to Increase Thermal Stability. *Viruses*, *13*.
- Maier, F. I., Klinger, D., Grieshaber, M., Noschka, R., Rodriguez, A., Wiese, S., ... & Stenger, S. (2024). Lysozyme: an endogenous antimicrobial protein with potent activity against extracellular, but not intracellular *Mycobacterium tuberculosis*. *Medical Microbiology and Immunology*, *213*(1), 9.
- Mantzios, T., Stylianaki, I., Savvidou, S., Dokou, S., Papadopoulos, G., Panitsidis, I., Patsias, A., Raj, J., Vasiljević, M., Pajić, M., Gómez-Osorio, L., Bošnjak-Neumüller, J., Tsiouris, V., & Giannenas, I. (2024). Effects of Dietary Supplementation of Essential Oils, Lysozyme, and Vitamins' Blend on Layer Hen Performance, Viral Vaccinal Response, and Egg Quality Characteristics. *Vaccines*, *12*.
- Marra, A., Hanson, M. A., Kondo, S., Erkosar, B., & Lemaitre, B. (2021). *Drosophila* antimicrobial peptides and lysozymes regulate gut microbiota composition and abundance. *MBio*, *12*(4), 10-1128.
- Meng, J. X., Li, M. H., Wang, X. Y., Li, S., Zhang, Y., Ni, H. B., Ma, H., Liu, R., Yan, J. C., Li, X. M., Sun, Y. Z., Yang, X., & Zhang, X. X. (2025). Temporal variability in the diversity, function and resistome landscapes in the gut microbiome of broilers. *Ecotoxicology and environmental safety*, *292*, 117976.
- Muzhaffar, A. M., Hamid, I. S., Effendi, M. H., Wibawati, P. A., Sukmanadi, M., & Solfaine, R. (2023). Duodenum Histomorphology of *Bacillus subtilis* and *Bacillus coagulans* Isolate in Laying Hen Strain Isa Brown. *Journal of Basic Medical Veterinary*. *12*(2), 57-61.
- Nawaz, N., Wen, S., Wang, F., Nawaz, S., Raza, J., Iftikhar, M., & Usman, M. (2022). Lysozyme and its application as antibacterial agent in food industry. *Molecules*, *27*(19), 6305.

- Park, J., Sureshkumar, S., & Kim, I. (2021). Effects of dietary lysozyme supplementation on growth performance, nutrient digestibility, intestinal microbiota, and blood profiles of weanling pigs challenged with *Escherichia coli*. *Journal of Animal Science and Technology*, 63, 501 - 509.
- Paul, S. S., Rama Rao, S. V., Hegde, N., Williams, N. J., Chatterjee, R. N., Raju, M. V. L. N., ... & Gargi, M. (2022). Effects of dietary *antimicrobial growth promoters* on performance parameters and abundance and diversity of broiler chicken gut microbiome and selection of antibiotic resistance genes. *Frontiers in microbiology*, 13, 905050.
- Rahman, M., Tumpa, M., Zehravi, M., Sarker, M., Yamin, M., Islam, M., Harun-Or-Rashid, M., Ahmed, M., Ramproshad, S., Mondal, B., Dey, A., Damiri, F., Berrada, M., Rahman, M., & Cavalu, S. (2022). An Overview of Antimicrobial Stewardship Optimization: The Use of Antibiotics in Humans and Animals to Prevent Resistance. *Antibiotics*, 11 (5) : 667.
- Ribeiro, J., Silva, V., Monteiro, A., Vieira-Pinto, M., Igrejas, G., Reis, F. S., ... & Poeta, P. (2023). Antibiotic resistance among gastrointestinal bacteria in broilers: A review focused on *Enterococcus* spp. and *Escherichia coli*. *Animals*, 13(8), 1362.
- Ribeiro, J., Silva, V., Monteiro, A., Vieira-Pinto, M., Igrejas, G., Reis, F. S., Barros, L., & Poeta, P. (2023). Antibiotic resistance among gastrointestinal bacteria in broilers: A review focused on *Enterococcus* spp. and *Escherichia coli*. *Animals*, 13(8), 1362.
- Rouchon, C. N., Harris, J., Zubair-Nizami, Z., Weinstein, A. J., Roky, M., & Frank, K. L. (2022). The cationic antimicrobial peptide activity of lysozyme reduces viable *Enterococcus faecalis* cells in biofilms. *Antimicrobial Agents and Chemotherapy*, 66(5), e02339-21.
- Rysman, K., Eeckhaut, V., Ducatelle, R., & Van Immerseel, F. (2023). The fecal biomarker ovotransferrin associates with broiler performance under field conditions. *Poultry Science*, 102(11), 103011.
- Safitri, E., & Plumerastuti. (2023). *AYAM BROILER - Aspek Fisiologi Reproduksi & Patologinya*. Surabaya: Airlangga University Press.
- Salam, M. A., Al-Amin, M. Y., Salam, M. T., Pawar, J. S., Akhter, N., Rabaan, A. A., & Alqumber, M. A. (2023). *Antimicrobial resistance: a growing serious threat for global public health*. In *Healthcare* (Vol. 11, No. 13, p. 1946). MDPI.
- Sanga, G. J., Hiramoto, S., Miyajima, R., Duc, V. M., Obi, T., Shigemura, H., & Chuma, T. (2025). Increased kanamycin-resistant *Salmonella* Schwarzengrund, serovar changing and antimicrobial susceptibility of *Salmonella enterica* from broiler chickens in Kagoshima, Japan between 2019 and 2023. *BMC Veterinary Research*, 21(1), 599.

- Seyedeh Mozhgan, M. B., Ebrahim, R., Hashemi, S. M., & Noosha, Z. J. (2025). Investigating the Prevalence of Enterotoxin and Antibiotic Resistance in Methicillin-Resistant *Staphylococcus aureus* (MRSA) Isolated From Meat and Edible Viscera of Broiler Chickens. *Veterinary Medicine and Science*, 11(4), e70413.
- Shah, S. C., Piazuolo, M. B., Kuipers, E. J., & Li, D. (2021). AGA clinical practice update on the diagnosis and management of atrophic gastritis: expert review. *Gastroenterology*, 161(4), 1325-1332.
- Sindaye, D., Xiao, Z., Wen, C., Yang, K., Zhang, L., Liao, P., & Deng, B. (2023). Exploring the effects of lysozyme dietary supplementation on laying hens: performance, egg quality, and immune response. *Frontiers in Veterinary Science*, 10, 1273372.
- Sittiya, J., Yamauchi, K., Nimanong, W., & Thongwittaya, N. (2020). Influence of levels of dietary fiber sources on the performance, carcass traits, gastrointestinal tract development, fecal ammonia nitrogen, and intestinal morphology of broilers. *Brazilian Journal of Poultry Science*, 22(01), eRBCA-2019.
- Soltani, N., Rahimi, S., Khaki, P., Torshizi, M. A. K., Eskandari, B., & Grimes, J. (2025). Efficacy of hyperimmunized egg yolk antibodies (IgY) against *Campylobacter jejuni*: In Vitro and In Vivo evaluations. *Poultry Science*, 104(2), 104718.
- Son, J., Kim, H. J., Hong, E. C., & Kang, H. K. (2022). Effects of stocking density on growth performance, antioxidant status, and meat quality of finisher broiler chickens under high temperature. *Antioxidants*, 11(5), 871.
- Song, L. X. (2024). Mechanisms of antimicrobial resistance. *Highlights in Science, Engineering and Technology*, 123, 734-739.
- Spínola, M. P., Alfaia, C. M., Costa, M. M., Pinto, R. M., Lopes, P. A., Pestana, J. M., & Prates, J. A. (2024). Impact of high Spirulina diet, extruded or supplemented with enzymes, on blood cells, systemic metabolites, and hepatic lipid and mineral profiles of broiler chickens. *Frontiers in Veterinary Science*, 11, 1342310.
- Stepanenko, O., Sulatsky, M., Mikhailova, E., Stepanenko, O., Kuznetsova, I., Turoverov, K., & Sulatskaya, A. I. (2021). Trypsin Induced Degradation of Amyloid Fibrils. *International Journal of Molecular Sciences*, 22.
- Sulfikar, S., Afdal, M., Ruslan, Z., & Dini, I. (2024). Pola Resistensi Antibiotik Isolat *Escherichia Coli* dari Ayam Broiler di Kota Makassar, Indonesia. *Chemica: Jurnal Ilmiah Kimia dan Pendidikan Kimia*. 25 (2) : 115-125.
- Tang, K., Millar, B., & Moore, J. (2023). Antimicrobial resistance (AMR). *British Journal of Biomedical Science*, 80.

- Tejeda, O. J., & Kim, W. K. (2021). Effects of fiber type, particle size, and inclusion level on the growth performance, digestive organ growth, intestinal morphology, intestinal viscosity, and gene expression of broilers. *Poultry Science*, 100(10), 101397.
- Tiurina D.G., Gorfunkel E.P., Filippova V.A., Laptev G.Yu., Novikova N.I., Yildirim E.A., Ilyina L.A., Dubrovin A.V., Dubrovina A.S., Kalitkina K.A., Zaikin V.A., Ponomareva E.S., Savicheva A.A., Patyukova N.S. The development of *antimicrobial resistance* in broilers affected by veterinary antimicrobials and a probiotic administration. *Agrarian science*. 2024;(3):85-91.
- Untari, T., Herawati, O., Anggita, M., Asmara, W., Wahyuni, A. E. T. H., & Wibowo, M. H. (2021). The effect of antibiotic growth promoters (AGP) on antibiotic resistance and the digestive system of broiler chicken in Sleman, Yogyakarta. In *BIO Web of Conferences* 33, 04005.
- Velazquez-Meza, M., Galarde-López, M., Carrillo-Quiroz, B., & Alpuche-Aranda, C. (2022). *Antimicrobial resistance: One Health approach*. *Veterinary World*, 15, 743 - 749.
- Wang, S.-W., & Wang, T. (2022). Study on Antibacterial Activity and Structure of Chemically Modified Lysozyme. *Molecules*, 28.
- Wang, T., Xu, H., Zhang, S., Hu, Y., Wu, Y., Zhang, R., Xiao, X., & Yang, C. (2025). Effect of lysozyme supplementation on growth performance, immune status, antioxidant function and intestinal microbiota in broilers. *Poultry Science*, 104 (11) : 105829.
- Wu, Y., Cheng, B., Ji, L., Lv, X., Feng, Y., Li, L., & Wu, X. (2023). Dietary lysozyme improves growth performance and intestinal barrier function of weaned piglets. *Animal Nutrition*, 14, 249 – 258.
- Yang, T., Du, M., Zhang, J., Ahmad, B., Cheng, Q., Wang, X., & Si, D. (2023). Effects of *Clostridium butyricum* as an antibiotic alternative on growth performance, intestinal morphology, serum biochemical response, and immunity of broilers. *Antibiotics*, 12(3), 433.
- Yang, W., Xi, C., Yao, H., Yuan, Q., Zhang, J., Chen, Q., Wu, G., & Hu, J. (2024). Oral Administration of Lysozyme Protects Against Injury Of Ileum Via Modulating Gut Microbiota Dysbiosis After Severe Traumatic Brain Injury. *Frontiers in Cellular and Infection Microbiology*, 14, 1304218.
- Zachary, J. F. 2022. *Pathologic Basis of Veterinary Disease*. 7th ed. St. Louis: Elsevier.
- Zhang, C., Xiang, C., Zhou, K., Liu, X., Qiao, G., Zhao, Y., Dong, K., Sun, K., & Liu, Z. (2024). Intestinal lysozyme1 deficiency alters microbiota composition and impacts host metabolism through the emergence of NAD⁺-secreting ASTB Qing110 bacteria. *Msystems*, 9(3), e01214-23.

Zhao, Z. X., Yuan, Y. M., Zhao, Z. H., Yao, Q. H., Ye, X. Q., Wang, Y. Y., & Liu, W. C. (2024). Phlorotannin alleviates liver injury by regulating redox balance, apoptosis, and ferroptosis of broilers under heat stress. *Antioxidants*, 13(9), 1048.