



DAFTAR PUSTAKA

- Abdul-Hassan, L.S., Hadi, O.M., and Njum, A.A. 2020. Cytokine responses to multidrug-resistance – *Salmonella typhi* in patients with typhoid fever in Najaf province. *Drug Invent. Today.* 13(2): 269–272.
- Ajibola, O., Mshelia, M. B., Gulumbe, B. H., and Eze, A. A. 2018. Typhoid fever diagnosis in endemic countries: A clog in the wheel of progress? *Medicina (Kaunas)*. 54(2): 1–12. <https://doi.org/10.3390/medicina54020023>
- Al-Jaberi, Z. A., and Al-Abawy, D. A. H. 2023. Assessing the Microbial Safety of Drinking Water in Basrah Province: A study of Three Water Treatment Plants. *IOP Conf. Ser.: Earth Environ. Sci.* 1215(1). <https://doi.org/10.1088/1755-1315/1215/1/012056>
- Al-Jobori, K., Al-Bakri, A., and Al-Baity, B. 2015. Detection of *Salmonella* spp. in different food sources in Baghdad City: A Comparison between Conventional and Chromogenic Methods. *International Journal of Advanced Research in Biological Sciences.* 2(11): 171–184.
- Amarantini, C., Sembiring, L., Kushadiwijaya, H., and Asmara, W. 2009. Isolasi, Karakterisasi dan Pengelompokan Strain *Salmonella typhi* Asal Kabupaten Sumba Barat Daya Nusa Tenggara Timur Berdasarkan Sifat-Sifat Fenotip. *Berkala Penelitian Hayati.* 14(2): 191–195. <https://doi.org/10.23869/bphjbr.14.2.200912>
- _____. 2011. Identification and characterization of *Salmonella typhi* isolates from Southwest Sumba District, East Nusa Tenggara based on 16S rRNA gene sequences. *Biodiversitas.* 12: 1–6. <https://doi.org/10.13057/biodiv/d120101>
- Amiruddin, R. R., Darniati, and Ismail. 2017. Isolasi Dan Identifikasi *Salmonella* sp. Pada Ayam Bakar Di Rumah Makan Kecamatan Syiah Kuala Kota Banda Aceh. *Jimvet.* 1(3): 265–274.
- Anbazhagan, P. V., Thavitiki, P. R., Varra, M., Annamalai, L., Putturu, R., Lakkineni, V. R., and Pesingi, P. K. 2019. Evaluation of efflux pump activity of multidrug-resistant *Salmonella typhimurium* isolated from poultry wet markets in India. *Infect. Drug Resist.* 12: 1081–1088. <https://doi.org/10.2147/IDR.S185081>
- Andrews, J. R., Qamar, F. N., Charles, R. C., and Ryan, E. T. 2018. Extensively Drug-Resistant Typhoid - Are Conjugate Vaccines Arriving Just in Time? *N. Engl. J. Med.* 379(16): 1493–1495. <https://doi.org/10.1056/NEJMmp1803926>
- Atlas, R. M. 1997. Principles of Microbiology. 2nd ed. Dubuque, IA.



- Azmatullah, A., Qamar, F. N., Thaver, D., Zaidi, A. K. M., and Bhutta, Z. A. 2015. Systematic review of the global epidemiology, clinical and laboratory profile of enteric fever. *J. Glob. Health.* 5(2). <https://doi.org/10.7189/jogh.05.020407>
- Baker, S., Blohmke, C. J., Maes, M., Johnston, P. I., and Darton, T. C. 2020. The current status of enteric fever diagnostics and implications for disease control. *Clin. Infect. Dis.* 71(Suppl 2): S64–S70. <https://doi.org/10.1093/cid/ciaa503>
- Bano, S. A., Hayat, M., Samreen, T., Asif, M., Habiba, U., and Uzair, B. 2020. Detection of Pathogenic Bacteria *Staphylococcus aureus* and *Salmonella* sp. from Raw Milk Samples of Different Cities of Pakistan. *Nat. Sci.* 12(05): 295–306. <https://doi.org/10.4236/ns.2020.125026>
- Barrow, G. I. and Feltham, R. K. A. 2003. *Cowan and Steel's Manual for the Identification of Medical Bacteria*, 3rd ed. Cambridge University Press, Cambridge.
- Basnyat, B., Qamar, F. N., Rupali, P., Ahmed, T., and Parry, C. M. 2021. Enteric fever. *BMJ.* 372: 1–7. <https://doi.org/10.1136/bmj.n437>
- Bassetti, D., and Roscioli, B. 1978. Gentamicin in the Treatment of *Salmonella* Infections. *J. Int. Med. Res.* 6: 1–5.
- Bavishi, C., and DuPont, H. L. 2011. Systematic review: The use of proton pump inhibitors and increased susceptibility to enteric infection. *Aliment. Pharmacol. Ther.* 34(11–12): 1269–1281. <https://doi.org/10.1111/j.1365-2036.2011.04874.x>
- Bell, C. and Kyriakides, A. 2007. *Salmonella: A Practical Approach to the Organism and its Control in Foods*. Blackwell Sci. Ltd., Oxford. <https://doi.org/10.1002/9780470999455>
- Bennasar, A., de Luna, G., Cabrer, B., and Lalucat, J. 2000. Rapid identification of *Salmonella typhimurium*, *S. enteritidis*, and *S. virchow* isolates by polymerase chain reaction-based fingerprinting methods. *Int. Microbiol.* 3(1): 31–38.
- Bennett, J. W. 2015. What is an Antibiotic? In *Antibiotics: Current Innovations and Future Trends*. Caister Academic Press, Poole.
- Bertelli, C., and Greub, G. 2013. Rapid bacterial genome sequencing: Methods and applications in clinical microbiology. *Clin Microbiol and Infect.* 19(9): 803–813. <https://doi.org/10.1111/1469-0991.12217>
- Berthoud, H., Wechsler, D., and Irmler, S. 2022. Production of putrescine and cadaverine by *Paucilactobacillus wasatchensis*. *Front. Microbiol.* 13: 1–9. <https://doi.org/10.3389/fmicb.2022.842403>
- Bharathi, R., Ganesh, S. S., Harini, G., Vatsala, K., Anushikaa, R., Aravind, S., Abinaya, S., and Selvamurugan, N. 2022. Chitosan-based scaffolds as drug delivery systems in bone tissue engineering. *Int. J. Biol. Macromol.* 222: 132–153. <https://doi.org/10.1016/J.IJBIOMAC.2022.09.058>



- Blaser, M. J., and Musser, J. M. 2001. Bacterial polymorphisms and disease in humans. *J. Clin. Invest.* 107(4): 391–392.
- Bochner, B. R. 2009. Global phenotypic characterization of bacteria. *FEMS Microbiol Rev.* 33(1): 191–205. <https://doi.org/10.1111/j.1574-6976.2008.00149.x>
- Boucher, J. C., Yu, H., Mudd, M. H., and Deretic, V. 1997. Mucoid *Pseudomonas aeruginosa* in cystic fibrosis: Characterization of muc mutations in clinical isolates and analysis of clearance in a mouse model of respiratory infection. *Infect. Immun.* 65(9): 3838–3846. <https://doi.org/10.1128/iai.65.9.3838-3846.1997>
- Brands, D. A. and Alcamo, I. E. 2005. *Salmonella* (1st ed.). Chelsea House Publishers, New York.
- Breijyeh, Z., Jubeh, B., and Karaman, R. 2020. Resistance of Gram-negative bacteria to current antibacterial agents and approaches to resolve it. *Molecules*. 25(6): 1–16. <https://doi.org/10.3390/molecules25061340>
- Britto, C. D., Wong, V. K., Dougan, G., and Pollard, A. J. 2018. A systematic review of antimicrobial resistance in *Salmonella enterica* serovar *typhi*, the etiological agent of typhoid. *PLoS Negl. Trop. Dis.* 12(10): e0006779. <https://doi.org/10.1371/journal.pntd.0006779>
- Brooks, Geo. F., Carroll, K. C., Butel, J. S. and Morse, S. A. 2007. *Jawetz, Melnick, & Adelberg's Medical Microbiology* (24th ed.). The McGraw-Hill Companies, Inc., New York.
- Brown, T. A. and Muhammad, S. A. 1991. *Pengantar Kloning Gen* (1st ed.). Yogyakarta Yayasan Essentia Medica, Yogyakarta.
- Buckle, G. C., Walker, C. L. F., and Black, R. E. 2012. Typhoid fever and paratyphoid fever: Systematic review to estimate global morbidity and mortality for 2010. *J. Glob. Health.* 2(1): 1–8. <https://doi.org/10.7189/JOGH.02.010401>
- Budin, G., Chung, H. J., Lee, H., and Weissleder, R. 2012. A magnetic Gram stain for bacterial detection. *Angew. Chem. Int. Ed.* 51(31): 7752–7755. <https://doi.org/10.1002/anie.201202982>
- Bundalian, R., Valenzuela, M., and Tiongco, R. E. 2019. Achieving accurate laboratory diagnosis of typhoid fever: A review and meta-analysis of TUBEX® TF clinical performance. *Pathog. Glob. Health.* 113(7): 297–308. <https://doi.org/10.1080/20477724.2019.1695081>
- Buxton, R. 2005. Blood Agar Plates and Hemolysis Protocols. *Am. Soc. Microbiol.*: 1–9.
- Calderon, E. 1974. Amoxicillin in the Treatment of Typhoid Fever Due to Chloramphenicol-Resistant *Salmonella typhi*. *J. Infect. Dis.* 129: s219–s221.
- Carneiro, D. G., Almeida, F. A., Aguilar, A. P., Vieira, N. M., Pinto, U. M., Mendes, T. A. O., and Vanetti, M. C. D. 2020. *Salmonella enterica* Optimizes Metabolism After Addition of Acyl-Homoserine Lactone Under



- Anaerobic Conditions. *Front. Microbiol.* 11: 1459. <https://doi.org/10.3389/fmicb.2020.01459>
- Castro-Vargas, R. E., Herrera-Sánchez, M. P., Rodríguez-Hernández, R., and Rondón-Barragán, I. S. 2020. Antibiotic resistance in *Salmonella* spp. isolated from poultry: A global overview. *Vet. World.* 13(10): 2070–2084. <https://doi.org/10.14202/vetworld.2020.2070-2084>
- Centers for Disease Control and Prevention. 2023. Information for Healthcare Professionals | *Salmonella* | CDC. (<https://www.cdc.gov/Salmonella/general/technical.html>). Diakses tanggal [15 September 2024]
- Chang, H. R., Loo, L. H., Jeyaseelan, K., Earnest, L., and Stackebrandt, E. 1997. Phylogenetic relationships of *Salmonella typhi* and *Salmonella typhimurium* based on 16S rRNA sequence analysis. *Int. J. Syst. Bacteriol.* 47(4): 1253–1254. <https://doi.org/10.1099/00207713-47-4-1253>
- Chaudhary, J. H., Nayak, J. B., Brahmbhatt, M. N., and Makwana, P. P. 2015. Virulence genes detection of *Salmonella* serovars isolated from pork and slaughterhouse environment in Ahmedabad, Gujarat. *Veterinary World.* 8(1): 121–124. <https://doi.org/10.14202/vetworld.2015.121-124>
- Chaudhry, R., Laxmi, B. V., Nisar, N., Ray, K., and Kumar, D. 1997. Standardisation of polymerase chain reaction for the detection of *Salmonella typhi* in typhoid fever. *J. Clin. Pathol.* 50(5): 437–439. <https://doi.org/10.1136/jcp.50.5.437>
- Chen, C. W., Hsu, C. Y., Lai, S. M., Syu, W. J., Wang, T. Y., and Lai, P. S. 2014. Metal nanobullets for multidrug resistant bacteria and biofilms. *Adv. Drug Deliv. Rev.* 78: 88–104. <https://doi.org/10.1016/j.addr.2014.08.004>
- Chen, K., Dong, N., Chan, E. W. C., and Chen, S. 2019. Transmission of ciprofloxacin resistance in *Salmonella* mediated by a novel type of conjugative helper plasmids. *Emerg. Microbes Infect.* 8(1): 857–865. <https://doi.org/10.1080/22221751.2019.1626197>
- Chen, S., Fu, J., Zhao, K., Yang, S., Li, C., Penttilä, P., Ao, X., Liu, A., Hu, K., Li, J., Yang, Y., Liu, S., Bai, L., and Zou, L. 2023. Class 1 integron carrying *qacEΔI* gene confers resistance to disinfectant and antibiotics in *Salmonella*. *Int. J. Food Microbiol.* 404: 110319. <https://doi.org/10.1016/j.ijfoodmicro.2023.110319>
- Chen, Y., Hu, D., Zhang, Q., Liao, X.-P., Liu, Y.-H., and Sun, J. 2017. Efflux Pump Overexpression Contributes to Tigecycline Heteroresistance in *Salmonella enterica* serovar *typhimurium*. *Front. Cell. Infect. Microbiol.* 7: 37. <https://doi.org/10.3389/fcimb.2017.00037>
- Christensen, H., Nordentoft, S., and Olsen, J. E. 1998. Phylogenetic relationships of *Salmonella* based on rRNA sequences. *Int. J. Syst. Bacteriol.* 48: 605–610. <https://doi.org/10.1099/00207713-48-2-605>



- Clark, N. F., and Taylor-Robinson, A. W. 2021. An Ecologically Framed Comparison of The Potential for Zoonotic Transmission of Non-Human and Human-Infecting Species of Malaria Parasite. In *Yale J. Biol. Med.* 94.
- Criscuolo, A., Issenhuth-Jeanjean, S., Didelot, X., Thorell, K., Hale, J., Parkhill, J., Thomson, N. R., Weill, F. X., Falush, D., and Brisson, S. 2019. The speciation and hybridization history of the genus *Salmonella*. *Microb. Genom.* 5(8): 1–11. <https://doi.org/10.1099/mgen.0.000284>
- Csuros, M. 1999. *Microbiological Examination of Water and Wastewater*. CRC Press, Boca Raton.
- Cui, T., Zhang, S., Ye, J., Gao, L., Zhan, M., and Yu, R. 2022. Distribution, Dissemination and Fate of Antibiotic Resistance Genes During Sewage Sludge Processing—a Review. *Water Air Soil Pollut.* 233(4). <https://doi.org/10.1007/s11270-022-05597-7>
- Dandekar, T., Fieselmann, A., Fischer, E., Popp, J., Hensel, M., and Noster, J. J. 2014. *Salmonella*—how a metabolic generalist adopts an intracellular lifestyle during infection. *Front. Cell. Infect. Microbiol.* 4: 191. <https://doi.org/10.3389/fcimb.2014.00191>
- Darmawati, S., Sembiring, L., Asmara, W., Artama, W. T., and Kawaichi, M. 2014. Phylogenetic relationship of Gram Negative Bacteria of Enterobacteriaceae Family in the Positive Widal Blood Cultures based on 16S rRNA Gene Sequences. *Indones. J. Biotechnol.* 19(1): 64–70. <https://doi.org/10.22146/ijbiotech.8635>
- Das, S., Dash, H. R., Mangwani, N., Chakraborty, J., and Kumari, S. 2014. Understanding molecular identification and polyphasic taxonomic approaches for genetic relatedness and phylogenetic relationships of microorganisms. *J. Microbiol. Methods.* 103: 80–100. <https://doi.org/10.1016/j.mimet.2014.05.013>
- Davis, B. D. 1987. Mechanism of bactericidal action of aminoglycosides. *Microbiol. Rev.* 51(3): 341–350. <https://doi.org/10.1128/mr.51.3.341-350.1987>
- Davis, B. D., Chen, L. L., and Tai, P. C. 1986. Misread protein creates membrane channels: an essential step in the bactericidal action of aminoglycosides. *Proc. Natl. Acad. Sci. U.S.A.* 83(16): 6164–6168. <https://doi.org/10.1073/pnas.83.16.6164>
- Dewan, E., and Verma, V. 2019. Antimicrobial Susceptibility Trends in *Salmonella enterica* Isolates - A 6 Year Study from a Tertiary Care Hospital in North India. *J. Evol. Med. Dent. Sci.* 8(42): 3119–3124. <https://doi.org/10.14260/jemds/2019/677>
- Dharmayanti, N. L. P. I. 2011. Filogenetika Molekuler: Metode Taksonomi Organisme Berdasarkan Sejarah Evolusi. *Wartazoa.* 21(1): 1–10. <https://doi.org/10.2307/2799276>



- Dhillon, S. 2018. Meropenem/Vaborbactam: A Review in Complicated Urinary Tract Infections. *Drugs.* 78(12): 1259–1270. <https://doi.org/10.1007/s40265-018-0966-7>
- Diwaker, A., Tiwari, A., Jain, S., Rupali, K.A., Ram, J., Singh, S. and Kishore, D. 2024. Enteric fever and the diagnostic tools: defining the accuracy. *Front. Bacteriol.* 3(January), 1–11. <https://doi.org/10.3389/fbrio.2024.1332180>
- Djeghout, B., Saha, S., Sajib, M.S.I., Tanmoy, A.M., Islam, M., Kay, G.L., Langridge, G.C., Endtz, H.P., Wain, J. and Saha, S.K. 2018. Ceftriaxone-resistant *Salmonella typhi* carries an IncI1-ST31 plasmid encoding CTX-M-15. *J. Med. Microbiol.* 67(5), 620–627. <https://doi.org/10.1099/jmm.0.000727>
- Donelli, G., Vuotto, C. and Mastromarino, P. 2013. Phenotyping and genotyping are both essential to identify and classify a probiotic microorganism. *Microb. Ecol. Health Dis.* 24(0), 1–8. <https://doi.org/10.3402/mehd.v24i0.20105>
- Dunkle, J.A., Vinal, K., Desai, P.M., Zelinskaya, N., Savic, M., West, D.M., Conn, G.L. and Dunham, C.M. 2014. Molecular recognition and modification of the 30S ribosome by the aminoglycoside-resistance methyltransferase NpmA. *Proc. Natl. Acad. Sci. U.S.A.* 111(17), 6275–6280. <https://doi.org/10.1073/pnas.1402789111>
- EFSA. 2021. The European Union One Health 2020 Zoonoses Report. *EFSA Journal.* 19(12). <https://doi.org/10.2903/j.efsa.2021.6971>
- Egorov, A.M., Ulyashova, M.M. and Rubtsova, M.Y. 2018. Bacterial Enzymes and Antibiotic Resistance. *Acta Naturae* 10(4), 33–48.
- Eleazar, C.I., Philip, I.P. and Ogeneh, B.O. 2015. Dissemination of *Salmonella* bacilli through Carriers and Domestic Water Sources in Enugu Urban/Peri-Urban of Nigeria. *Adv. Microbiol.* 5(4), 278–284. <https://doi.org/10.4236/aim.2015.54026>
- Emmeluth, D. 2004. *Deadly Diseases and Epidemics: Typhoid Fever* (Vol. 3, Issue 2).
- Eng, S.K., Pusparajah, P., Ab Mutalib, N.S., Ser, H.L., Chan, K.G., and Lee, L.H. 2015. *Salmonella*: A review on pathogenesis, epidemiology and antibiotic resistance. *Front. Life Sci.* 8(3): 284–293. <https://doi.org/10.1080/21553769.2015.1051243>
- Etebu, E., and Arikekpar, I. 2016. Classification and mechanisms of action with emphasis on molecular perspectives. *Int. J. Appl. Microbiol. Biotechnol. Res.* January 2016.
- Fàbrega, A., and Vila, J. 2013. *Salmonella enterica* serovar *typhimurium* skills to succeed in the host: virulence and regulation. *Clin. Microbiol. Rev.* 26(2): 308–341. <https://doi.org/10.1128/CMR.00066-12>
- Faisal, S., Khan, S., Shah, S., Hasnain, M., Abbas, S., Ilyas, N., Thea, S., Ali, F., Akbar, M., Rizwan, M., and Ullah, R. 2021. Biochemical identification,



- antibiotic sensitivity and resistance pattern for *Salmonella typhi* and *Salmonella paratyphi*.
- Fatmarischa, N., Sutopo, and Johari, S. 2014. Jarak genetik dan faktor peubah pembeda entok jantan dan betina melalui pendekatan analisis morfometrik. *J. Peternak. Indones.* 16(1): 33. <https://doi.org/10.25077/jpi.16.1.33-39.2014>
- Food and Drug Administration. 2013. Sulfamethoxazole and trimethoprim DS (double strength) tablets and tablets USP. *Clin. Pharmacol.* http://www.accessdata.fda.gov/drugsatfda_docs/label/2013/017377s068s073lbl.pdf
- Frye, J.G., and Jackson, C.R. 2013. Genetic mechanisms of antimicrobial resistance identified in *Salmonella enterica*, *Escherichia coli*, and *Enterococcus* spp. isolated from U.S. food animals. *Front. Microbiol.* 4: 135. <https://doi.org/10.3389/fmicb.2013.00135>
- Fukushima, M., Kakinuma, K., and Kawaguchi, R. 2002. Strains on the basis of the *gyrB* gene sequence. *J. Clin. Microbiol.* 40(8): 2779–2785. <https://doi.org/10.1128/JCM.40.8.2779>
- García, C., Lejon, V., Horna, G., Astocondor, L., Vanhoof, R., Bertrand, S., and Jacobs, J. 2014. Intermediate susceptibility to ciprofloxacin among *Salmonella enterica* serovar *typhi* isolates in Lima, Peru. *J. Clin. Microbiol.* 52(3): 968–970. <https://doi.org/10.1128/JCM.02663-13>
- Ghai, I., and Ghai, S. 2018. Understanding antibiotic resistance via outer membrane permeability. *Infect. Drug Resist.* 11: 523–530. <https://doi.org/10.2147/IDR.S156995>
- Gholami, D., Emruzi, Z., Noori, A. R., and Aminzadeh, S. 2019. Advances in bacterial identification and characterization: methods and applications. *Advanced Research in Microbial Metabolites & Technology.* 2(2019): 119–136. <https://doi.org/10.22104/armmt.2020.4319.1044>
- Gilman, R.H., Terminel, M., Levine, M.M., Hernandez-Mendoza, P., and Hornick, R.B. 1975. Relative efficacy of blood, urine, rectal swab, bone-marrow, and rose-spot cultures for recovery of *Salmonella typhi* in typhoid fever. *Lancet* 1(7918): 1211–1213. [https://doi.org/10.1016/S0140-6736\(75\)92194-7](https://doi.org/10.1016/S0140-6736(75)92194-7)
- Gustafson, R.H. 1993. Historical perspectives on regulatory issues of antimicrobial resistance. *Vet. Hum. Toxicol.* 35(Suppl 1): 2–5.
- Hafiane, F. Z., Tahri, L., El Jarmouni, M., Reyad, A. M., Fekhaoui, M., Mohamed, M. O., Abdelrahman, E. A., Rizk, S. H., El-Sayyad, G. S., and Elkhatib, W. F. 2024. Incidence, identification and antibiotic resistance of *Salmonella* spp. in the well waters of Tadla Plain, Morocco. *Scientific Reports.* 14(1): 1–10. <https://doi.org/10.1038/s41598-024-61917-3>
- Halder, P., Maiti, S., Banerjee, S., Das, S., Dutta, M., Dutta, S., and Koley, H. 2023. Bacterial ghost cell based bivalent candidate vaccine against *Salmonella typhi* and *Salmonella paratyphi* A: A prophylactic study in



- BALB/c mice. *Vaccine* 41(41): 5994–6007.
<https://doi.org/10.1016/j.vaccine.2023.08.049>
- Haque, A., Ahmed, J., and Qureshi, J.A. 1999. Early detection of typhoid by polymerase chain reaction. *Ann. Saudi Med.* 19(4): 337–340.
<https://doi.org/10.5144/0256-4947.1999.337>
- Hawaldar, R., Sodani, S., and Bhilware, H. 2016. Antibiotic sensitivity pattern of *Salmonella typhi* in a stand-alone lab in Central Madhya Pradesh. *Indian J. Microbiol. Res.* 3(1): 31. <https://doi.org/10.5958/2394-5478.2016.00009.1>
- Heithoff, D.M., Shimp, W.R., Lau, P.W., Badie, G., Enioutina, E.Y., Daynes, R.A., Byrne, B.A., House, J.K., and Mahan, M.J. 2008. Human *Salmonella* clinical isolates distinct from those of animal origin. *Appl. Environ. Microbiol.* 74(6): 1757–1766. <https://doi.org/10.1128/AEM.02740-07>
- Hentschke, M., Christner, M., Sobottka, I., Aepfelmacher, M., and Rohde, H. 2010. Combined ramR mutation and presence of a Tn6011-borne efflux pump contribute to cefepime resistance in a clinical *Salmonella enterica* serovar *typhimurium* isolate. *J. Antimicrob. Chemother.* 65(4): 791–793.
<https://doi.org/10.1093/jac/dkq061>
- Hernahadini, N., Fauzi, M. and Ihsani, N. 2023. Analisis Filogenetik Bakteri Indigen Penghasil Senyawa Siderofor Dari Rizhosfer Padi Sebagai Agen Pupuk Hayati Berdasarkan Gen *16S rRNA*. 4–7.
- Ihsan, B. and Retnaningrum, E. 2020. The Numerical Phenetic of Taxonomy Vibrio in Shellfish (*Meretrix meretrix*) at Edu-Tourism Mangrove Cengkrong Beach Trenggalek. *J. Ilm. Perikan. Kelaut.* 12: 296.
<https://doi.org/10.20473/jipk.v12i2.17846>
- Clarridge, J.E. III. 2004. Impact of *16S rRNA* gene sequence analysis for identification of bacteria on clinical microbiology and infectious diseases. *Clin. Microbiol. Rev.* 17(4): 840–862.
<https://doi.org/10.1128/CMR.17.4.840-862.2004>
- Imara, F. 2020. *Salmonella typhi* Bakteri Penyebab Demam Tifoid. *Prosiding Seminar Nasional Biologi Di Era Pandemi COVID-19*, 6(1): 1–5.
- ITIS. (2012). *Salmonella Lignaires*.
- Iwadate, Y., Ramezanifard, R., Golubeva, Y.A., Fenlon, L.A. and Slauch, J.M. 2021. PaeA (YtfL) protects from cadaverine and putrescine stress in *Salmonella typhimurium* and *E. coli*. *Mol. Microbiol.* 115(6): 1379–1394.
<https://doi.org/10.1111/mmi.14686>
- Jackson, M., Vineberg, S., and Theis, K. R. 2024. The Epistemology of Bacterial Virulence Factor Characterization. *Microorganisms*. 12(7): 1–16.
<https://doi.org/10.3390/microorganisms12071272>
- Jajere, S.M. 2019. A review of *Salmonella enterica* with particular focus on the pathogenicity and virulence factors, host specificity and adaptation and antimicrobial resistance including multidrug resistance. *Vet. World*. 12(4): 504–521. <https://doi.org/10.14202/vetworld.2019.504-521>



- Jawetz, E., Melnick, J.L. and Adelberg, E.A. 2005. Jawetz, Melnick & Adelberg's Mikrobiologi Kedokteran. 1st ed. Jakarta Salemba Medika.
- Jeníková, G., Pazlarová, J. and Demnerová, K. 2000. Detection of *Salmonella* in food samples by the combination of immunomagnetic separation and PCR assay. *Int. Microbiol.* 3(4): 225–229.
- Jim O'Neill. 2016. Tackling drug-resistant infections globally: final report and recommendations. *Rev. Antimicrob. Resist.*
- Johnson, J.S., Spakowicz, D.J., Hong, B.Y., Petersen, L.M., Demkowicz, P., Chen, L., Leopold, S.R., Hanson, B.M., Agresta, H.O., Gerstein, M., Sodergren, E. and Weinstock, G.M. 2019. Evaluation of 16S rRNA gene sequencing for species and strain-level microbiome analysis. *Nat. Commun.* 10(1): 1–11. <https://doi.org/10.1038/s41467-019-13036-1>
- Jung, B. and Hoilat, G.J. 2022. MacConkey Medium. StatPearls [Internet]. (<https://www.ncbi.nlm.nih.gov/books/NBK557394/>). Diakses tanggal [8 Mei 2024].
- Kaplan, T. 2014. The Role of Horizontal Gene Transfer in Antibiotic Resistance. *Eukaryon.* 10.
- Karkey, A., Thompson, C.N., Tran Vu Thieu, N., Dongol, S., Le Thi Phuong, T., Voong Vinh, P., Arjyal, A., Martin, L.B., Rondini, S., Farrar, J.J., Dolecek, C., Basnyat, B. and Baker, S. 2013. Differential Epidemiology of *Salmonella typhi* and *paratyphi* A in Kathmandu, Nepal: A Matched Case Control Investigation in a Highly Endemic Enteric Fever Setting. *PLoS Negl. Trop. Dis.* 7(8): 1–9. <https://doi.org/10.1371/journal.pntd.0002391>
- Kay, W.W. and Cameron, M.J. 1978. Transport of C4-dicarboxylic acids in *Salmonella typhimurium*. *Arch. Biochem. Biophys.* 190(1): 281–289. [https://doi.org/10.1016/0003-9861\(78\)90277-1](https://doi.org/10.1016/0003-9861(78)90277-1)
- Kehra, N., I.S., Padda, C.J., Swift. 2023. *Polymerase Chain Reaction (PCR)*. StatPearls [Internet]. (<https://www.ncbi.nlm.nih.gov/books/NBK589663/>). Diakses tanggal 23 Oktober 2024)
- Kepel, B. and Fatimawali. 2015. Penentuan jenis dengan analisis gen 16SrRNA dan uji daya reduksi bakteri resisten merkuri yang diisolasi dari feses pasien dengan tambalan amalgam merkuri di Puskesmas Bahu Manado. *J. Kedokt. Yarsi.* 23(1): 45–55.
- Keputusan Menteri Kesehatan Tentang Pedoman Pengendalian Demam Tifoid, Pub. L. No. 364/MENKES/SK/V/2006. 2006.
- Khadka, S., Shrestha, B., Pokhrel, A., Khadka, S., Joshi, R.D. and Banjara, M.R. 2021. Antimicrobial Resistance in *Salmonella typhi* Isolated From a Referral Hospital of Kathmandu, Nepal. *Microbiol. Insights.* 14: 11786361211056350. <https://doi.org/10.1177/11786361211056350>
- Khan, S., Harish, B.N., Menezes, G.A., Acharya, N.S. and Parija, S.C. 2012. Early diagnosis of typhoid fever by nested PCR for flagellin gene of *Salmonella enterica* serotype *typhi*. *Indian J. Med. Res.* 136(5): 850–854.



- Khoharo, H.K., Ansari, S. and Qureshi, F. 2010. Evaluating Single Acute-phase Widal test for the diagnosis of Typhoid Fever. *Med. Channel.* 16(1): 42–44.
- Klemm, E.J., Shakoor, S., Page, A.J., Qamar, F.N., Judge, K., Saeed, D.K., Wong, V.K., Dallman, T.J., Nair, S., Baker, S., Shaheen, G., Qureshi, S., Yousafzai, M.T., Saleem, M.K., Hasan, Z., Dougan, G. and Hasan, R. 2018. Emergence of an Extensively Drug-Resistant *Salmonella enterica* Serovar *typhi* Clone Harboring a Promiscuous Plasmid Encoding Resistance to Fluoroquinolones and Third-Generation Cephalosporins. *MBio.* 9(1). <https://doi.org/10.1128/mBio.00105-18>
- Kothari, A., Pruthi, A. and Chugh, T.D. 2008. The Burden of Enteric Fever. *J. Infect. Dev. Ctries.* 2(4): 253–259.
- Kotra, L.P., Haddad, J. and Mobashery, S. 2000. Aminoglycosides: perspectives on mechanisms of action and resistance and strategies to counter resistance. *Antimicrob. Agents Chemother.* 44(12): 3249–3256. <https://doi.org/10.1128/AAC.44.12.3249-3256.2000>
- Kousar, S., Rehman, N., Javed, A., Hussain, A., Naeem, M., Masood, S., Ali, H.A., Manzoor, A., Khan, A.A., Akrem, A., Iqbal, F., Zulfiqar, A., Jamshaid, M.B., Waqas, M., Waseem, A. and Saeed, M.Q. 2021. Intensive poultry farming practices influence antibiotic resistance profiles in *pseudomonas aeruginosa* inhabiting nearby soils. *Infect. Drug Resist.* 14(August): 4511–4516. <https://doi.org/10.2147/IDR.S324055>
- Kshikhundo, R. and Itumhelo, S. 2016. Bacterial species identification. *World News Nat. Sci.* 3: 26–38.
- Kumar, S. 2012. *Textbook of Microbiology*. Jaypee Brothers Medical Publisher (P) Ltd., New Delhi.
- Kumar, S., Stecher, G., Li, M., Knyaz, C. and Tamura, K. 2018. MEGA X: Molecular evolutionary genetics analysis across computing platforms. *Mol. Biol. Evol.* 35(6): 1547–1549. <https://doi.org/10.1093/molbev/msy096>
- Kunarso, D. H. 1987. Beberapa catatan tentang bakteri *Salmonella*. *Balai Penelitian Dan Pengembangan Lingkungan Laut, Pusat Penelitian Dan Pengembangan Oseanologi- LIPI*, Jakarta, XII(4): 79–90.
- Kurniati, E., Retnaningrum, E., Wijayanti, N. and Wibawa, T. 2022. The diversity and susceptibility against antibiotics of *Salmonella* spp. clinical isolates from Yogyakarta, Indonesia. *Biodiversitas* 23(11): 5806–5813. <https://doi.org/10.13057/biodiv/d231134>
- Kurokawa, M., Higashi, K., Yoshida, K., Sato, T., Maruyama, S., Mori, H. and Kurokawa, K. 2023. Metagenomic thermometer. *DNA Res.* 30(6). <https://doi.org/10.1093/dnares/dsad024>
- Lauteri, C., Festino, A. R., Conter, M. and Vergara, A. 2022. Prevalence and antimicrobial resistance profile in *Salmonella* spp. isolates from swine food chain. *Ital. J. Food Saf.* 11(2). <https://doi.org/10.4081/ijfs.2022.9980>



- Lee, Y.-L., Chen, H.-M., Hii, I.-M. and Hsueh, P.-R. 2022. Carbapenemase-producing Enterobacterales infections: recent advances in diagnosis and treatment. *Int. J. Antimicrob. Agents* 59(2): 106528. <https://doi.org/10.1016/j.ijantimicag.2022.106528>
- Levy, H., Diallo, S., Tennant, S. M., Livio, S., Sow, S. O., Tapia, M., Fields, P. I., Mikoleit, M., Tamboura, B., Kotloff, K. L., Lagos, R., Nataro, J. P., Galen, J. E. and Levine, M. M. 2008. PCR method to identify *Salmonella enterica* serovars *typhi*, *paratyphi* A, and *paratyphi* B among *Salmonella* isolates from the blood of patients with clinical enteric fever. *J. Clin. Microbiol.* 46(5): 1861–1866. <https://doi.org/10.1128/JCM.00109-08>
- Ley, B., Thriemer, K., Ame, S. M., Mtove, G. M., von Seidlein, L., Amos, B., Hendriksen, I. C. E., Mwambuli, A., Shoo, A., Kim, D. R., Ochiai, L. R., Favorov, M., Clemens, J. D., Wilfing, H., Deen, J. L. and Ali, S. M. 2011. Assessment and comparative analysis of a rapid diagnostic test (Tubex®) for the diagnosis of typhoid fever among hospitalized children in rural Tanzania. *BMC Infect. Dis.* 11. <https://doi.org/10.1186/1471-2334-11-147>
- Lin, D., Yan, M., Lin, S. and Chen, S. 2014. Increasing prevalence of hydrogen sulfide negative *Salmonella* in retail meats. *Food Microbiol.* 43: 1–4. <https://doi.org/10.1016/j.fm.2014.04.010>
- Liu, B., Knirel, Y.A., Feng, L., Perepelov, A.V., Senchenkova, S.N., Reeves, P.R., and Wang, L. 2014. Structural diversity in *Salmonella* O antigens and its genetic basis. *FEMS Microbiol. Rev.* 38(1): 56–89. <https://doi.org/10.1111/1574-6976.12034>.
- Liu, J., Hou, Y., Zhao, L., Chen, G., Chen, J., Zhao, Q., Ye, L., Cui, S. and Wang, C. 2024. Antimicrobial resistance and the genomic epidemiology of multidrug-resistant *Salmonella enterica* serovar *enteritidis* ST11 in China. *Front. Biosci. Landmark* 29(3). <https://doi.org/10.31083/j.fbl2903112>
- Liwan, S. Y. and Budiarso, T. Y. 2018. Monitoring of pollution of *Salmonella* sp. in raw milk using virulence gen marker. *Indones. Food Nutr. Prog.* 15(2): 54. <https://doi.org/10.22146/ifnp.33826>
- Llor, C. and Bjerrum, L. 2014. Antimicrobial resistance: risk associated with antibiotic overuse and initiatives to reduce the problem. *Ther. Adv. Drug Saf.* 5(6): 229–241. <https://doi.org/10.1177/2042098614554919>
- Logan, N. A. 1994. Bacterial systematics. In *Bacterial Systematics*. Blackwell Scientific Publication, Oxford. <https://doi.org/10.1002/9781444313949>
- Maddison, J. E., Watson, A. D. J. and Elliott, J. 2008. Chapter 8 - Antibacterial drugs. In J. E. Maddison, S. W. Page and D. B. Church (Eds.), *Small Anim. Clin. Pharmacol.* (2nd ed.), pp. 148–185. W.B. Saunders, St. Louis. <https://doi.org/10.1016/B978-070202858-8.50010-5>.
- Mahendrakumar, M. and Asrar Sheriff, M. 2015. Whole cell protein profiling of human pathogenic bacteria isolated from clinical samples. *Asian J. Sci. Res.* 8(3): 374–380. <https://doi.org/10.3923/ajsr.2015.374.380>



- Makwana, P. P., Nayak, J. B., Brahmbhatt, M. N. and Chaudhary, J. H. 2015. Detection of *Salmonella* spp. from chevon, mutton and its environment in retail meat shops in Anand city (Gujarat), India. *Vet. World* 8(3): 388–392. <https://doi.org/10.14202/vetworld.2015.388-392>
- Mandal, S., Mandal, M. D. and Pal, N. K. 2009. In vitro activity of gentamicin and amikacin against *Salmonella enterica* serovar *typhi*: A search for a treatment regimen for typhoid fever. *East. Mediterr. Health J.* 15(2): 264–268. <https://doi.org/10.26719/2009.15.2.264>
- Massi, M. N., Shirakawa, T., Gotoh, A., Hatta, M. and Kawabata, M. 2005. Identification and sequencing of *Salmonella enterica* serotype *typhi* isolates obtained from patients with perforation and non-perforation typhoid fever. *Southeast Asian J. Trop. Med. Public Health* 36(1): 118–122.
- Maurelli, A. T., Fernández, R. E., Bloch, C. A., Rode, C. K. and Fasano, A. 1998. “Black holes” and bacterial pathogenicity: a large genomic deletion that enhances the virulence of *Shigella* spp. and enteroinvasive *Escherichia coli*. *Proc. Natl. Acad. Sci. U.S.A.* 95(7): 3943–3948. <https://doi.org/10.1073/pnas.95.7.3943>
- Mawazo, A., Bwire, G. M. and Matee, M. I. N. 2019. Performance of Widal test and stool culture in the diagnosis of typhoid fever among suspected patients in Dar es Salaam, Tanzania. *BMC Res. Notes* 12(1): 1–5. <https://doi.org/10.1186/s13104-019-4340-y>
- McQuiston, J.R., Waters, R.J., Dinsmore, B.A., Mikoleit, M.L., and Fields, P.I. 2011. Molecular determination of H antigens of *Salmonella* by use of a microsphere-based liquid array. *J. Clin. Microbiol.* 49(2): 565–573. <https://doi.org/10.1128/JCM.01323-10>
- Mengist, H. M. and Tilahun, K. 2017. Diagnostic value of Widal test in the diagnosis of typhoid fever: A systematic review. *J. Med. Microbiol. Diagn.* 06(01). <https://doi.org/10.4172/2161-0703.1000248>
- Mezal, E.H., Sabol, A., Khan, M.A., Ali, N., Stefanova, R. and Khan, A.A. 2014. Isolation and molecular characterization of *Salmonella enterica* serovar *enteritidis* from poultry house and clinical samples during 2010. *Food Microbiol.* 38: 67–74. <https://doi.org/10.1016/j.fm.2013.08.003>
- Midorikawa, Y., Nakamura, S., Phetsouvanh, R. and Midorikawa, K. 2014. Detection of Non-Typhoidal *Salmonella* Using a Mechanism for Controlling Hydrogen Sulfide Production. *Open J. Med. Microbiol.* 4(1): 90–95. <https://doi.org/10.4236/ojmm.2014.41010>
- Miller, K.A., Phillips, R.S., Mrázek, J. and Hoover, T.R. 2013. *Salmonella* utilizes D-glucosaminate via a mannose family phosphotransferase system permease and associated enzymes. *J. Bacteriol.* 195(18): 4057–4066. <https://doi.org/10.1128/JB.00290-13>
- Mina, S.A., Hasan, M.Z., Hossain, A.K.M.Z., Barua, A., Mirjada, M.R. and Chowdhury, A.M.M.A. 2023. The Prevalence of Multi-Drug Resistant



- Salmonella typhi* Isolated From Blood Sample. *Microbiol. Insights.* 16: 11786361221150760. <https://doi.org/10.1177/11786361221150760>
- Moehario, L.H. 2009. The molecular epidemiology of *Salmonella typhi* across Indonesia reveals bacterial migration. *J. Infect. Dev. Ctries.* 3(8): 579–584. <https://doi.org/10.3855/jidc.548>
- Ndobe, S., Merpati, E.O., Rusaini, R., Serdiati, N. and Rusdi, R. 2023. Total plate count and *Salmonella* spp. in de-boned milkfish (*Chanos chanos*) in Palu City, Indonesia. *Depik.* 12(2): 179–187. <https://doi.org/10.13170/depik.12.2.30959>
- Noer, S. 2021. Identifikasi Bakteri secara Molekular Menggunakan 16S rRNA. *EduBiologia.* 1(1): 1. <https://doi.org/10.30998/edubiologia.v1i1.8596>
- Nogrady, N., Gado, I., Fekete, P.Z. and Paszti, J. 2005. Chloramphenicol resistance genes in *Salmonella enterica* subsp. *enterica* serovar *typhimurium* isolated from human and animal sources in Hungary. *Vet. Med.* 50(4): 164–170. <https://doi.org/10.17221/5609-VETMED>
- Nouaille-Degorce, B., Veau, C., Dautrey, S., Tod, M., Laouari, D., Carbon, C. and Farinotti, A.R. 1998. Influence of Renal Failure on Ciprofloxacin Pharmacokinetics in Rats. *Vol. 42, Issue 2.*
- Nouri, R., Ahangarzadeh Rezaee, M., Hasani, A., Aghazadeh, M. and Asgharzadeh, M. 2016. The role of gyrA and parC mutations in fluoroquinolones-resistant *Pseudomonas aeruginosa* isolates from Iran. *Braz. J. Microbiol.* 47(4): 925–930. <https://doi.org/10.1016/j.bjm.2016.07.016>
- O'Hara, C.M., Rhoden, D.L. and Miller, J.M. 1992. Reevaluation of the API 20E identification system versus conventional biochemicals for identification of members of the family Enterobacteriaceae: A new look at an old product. *J. Clin. Microbiol.* 30(1): 123–125. <https://doi.org/10.1128/jcm.30.1.123-125.1992>
- Oloke, J.K. 2000. Activity pattern of natural and synthetic antibacterial agents among hospital isolates. *Microbios.* 102(403): 175–181.
- Pancu, D.F., Scurtu, A., Macasoi, I.G., Marti, D., Mioc, M., Soica, C., Coricovac, D., Horhat, D., Poenaru, M. and Dehelean, C. 2021. Antibiotics: Conventional therapy and natural compounds with antibacterial activity-a pharmaco-toxicological screening. *Antibiotics.* 10(4). <https://doi.org/10.3390/antibiotics10040401>
- Papich, M.G. 2016. Cefazolin Sodium. In M.G. Papich (Ed.), *Saunders Handbook of Veterinary Drugs* (4th ed.), pp. 118–120. W.B. Saunders, St. Louis. <https://doi.org/10.1016/B978-0-323-24485-5.00135-2>
- Paray, A.A., Singh, M. and Amin Mir, M. 2023. Gram Staining: A Brief Review. *Int. J. Res. Rev.* 10(9): 336–341. <https://doi.org/10.52403/ijrr.20230934>
- Patel, J.B. 2001. 16S rRNA gene sequencing for bacterial pathogen identification in the clinical laboratory. *Mol. Diagn.* 6(4): 313–321. <https://doi.org/10.1054/modi.2001.29158>



- Patil, N. and Mule, P. 2019. Sensitivity Pattern Of *Salmonella typhi* And *paratyphi* A Isolates To Chloramphenicol And Other Anti-Typhoid Drugs: An In Vitro Study. *Infect. Drug Resist.* 12: 3217–3225. <https://doi.org/10.2147/IDR.S204618>
- Penwell, W.F., Shapiro, A.B., Giacobbe, R.A., Gu, R.-F., Gao, N., Thresher, J., McLaughlin, R.E., Huband, M.D., DeJonge, B.L.M., Ehmann, D.E. and Miller, A.A. 2015. Molecular mechanisms of sulbactam antibacterial activity and resistance determinants in *Acinetobacter baumannii*. *Antimicrob. Agents Chemother.* 59(3): 1680–1689. <https://doi.org/10.1128/AAC.04808-14>
- Percival, S.L., Chalmers, R., Embrey, M., Hunter, P., Sellwood, J. and Wyn-Jones, P. 2014. Microbiology of Waterborne Diseases: Microbiological Aspects and Risks. In *Microbiol. Waterborne Dis.* Academic Press, Amsterdam.
- Petti, C.A., Polage, C.R. and Schreckenberger, P. 2005. The role of 16S rRNA gene sequencing in identification of microorganisms misidentified by conventional methods. *J. Clin. Microbiol.* 43(12): 6123–6125. <https://doi.org/10.1128/JCM.43.12.6123-6125.2005>
- Pitti, M., Garcia-Vozmediano, A., Tramuta, C., Maurella, C., and Decastelli, L. 2023. Monitoring of Antimicrobial Resistance of *Salmonella* Serotypes Isolated from Humans in Northwest Italy, 2012–2021. *Pathogens.* 12(1): 2012–2021. <https://doi.org/10.3390/pathogens12010089>
- Prakash, O., Verma, M., Sharma, P., Kumar, M., Kumari, K., Singh, A., Kumari, H., Jit, S., Gupta, S.K., Khanna, M. and Lal, R. 2007. Polyphasic approach of bacterial classification - An overview of recent advances. *Indian J. Microbiol.* 47(2): 98–108. <https://doi.org/10.1007/s12088-007-0022-x>
- Priest, F.G. and Austin, B. 1993. Modern Bacterial Taxonomy. 2nd ed. Chapman & Hall. <https://doi.org/LK> - <https://worldcat.org/title/28749387>
- Priest, F. and Goodfellow, M. 2000. Applied Microbial Systematics. <https://doi.org/10.1007/978-94-011-4020-1>
- Prihatini, Aryati and Hetty. 2018. Identifikasi Cepat Mikroorganisme Menggunakan Alat Vitek-2. *Indones. J. Clin. Pathol. Med. Lab.* 13(3): 129–132. <https://doi.org/10.24293/ijcpml.v13i3.915>
- Qamar, F. N., Yousafzai, M. T., Khalid, M., Kazi, A. M., Lohana, H., Karim, S., Khan, A., Hotwani, A., Qureshi, S., Kabir, F., Aziz, F., Memon, N. M., Domki, M. H. and Hasan, R. 2018. Outbreak investigation of ceftriaxone-resistant *Salmonella enterica* serotype *typhi* and its risk factors among the general population in Hyderabad, Pakistan: a matched case-control study. *Lancet Infect. Dis.* 18(12): 1368–1376. [https://doi.org/10.1016/S1473-3099\(18\)30483-3](https://doi.org/10.1016/S1473-3099(18)30483-3)
- Rabirad, N., Mohammadpoor, M., Lari, A. R., Shojaie, A., Bayat, R. and Alebouyeh, M. 2014. Antimicrobial susceptibility patterns of the G-negative bacteria isolated from septicemia in Children's Medical Center, Tehran, Iran. *J. Prev. Med. Hyg.* 55(1): 23–26.



- Rakinin, A. L., Yushina, Y. K., Zaiko, E. V., Bataeva, D. S., Kuznetsova, O. A., Semenova, A. A., Ermolaeva, S. A., Beletskiy, A. V., Kolganova, T. V., Mardanov, A. V., Shapovalov, S. O. and Tkachik, T. E. 2021. Evaluation of antibiotic resistance of *Salmonella* serotypes and whole-genome sequencing of multiresistant strains isolated from food products in Russia. *Antibiotics (Basel)*. 11(1). <https://doi.org/10.3390/antibiotics11010001>
- Rakinin, A. L., Yushina, Y. K., Zaiko, E. V., Bataeva, D. S., Kuznetsova, O. A., Semenova, A. A., Ermolaeva, S. A., Beletskiy, A. V., Kolganova, T. V., Mardanov, A. V., Shapovalov, S. O. and Tkachik, T. E. 2022. Evaluation of antibiotic resistance of *Salmonella* serotypes and whole-genome sequencing of multiresistant strains isolated from food products in Russia. *Antibiotics*. 11(1). <https://doi.org/10.3390/antibiotics11010001>
- Ramdani, F.A., Riwu, K.H.P., Kholik, and Mbura, Y.V.H., Zakarias, H.V. 2024. Pattern of antibiotic resistance in *Salmonella* sp. bacteria contaminating fresh faeces of laying hens in Kediri District, West Lombok Regency. *Biota* 9(2): 145–154.
- Rasschaert, G., Van Elst, D., Colson, L., Herman, L., Ferreira, H.C. de C., Dewulf, J., Decrop, J., Meirlaen, J., Heyndrickx, M., and Daeseleire, E. 2020. Antibiotic residues and antibiotic-resistant bacteria in pig slurry used to fertilize agricultural fields. *Antibiotics* 9(1). <https://doi.org/10.3390/antibiotics9010034>
- Rentschler, S., Kaiser, L., and Deigner, H. P. 2021. Emerging options for the diagnosis of bacterial infections and the characterization of antimicrobial resistance. *Int J Mol Sci.* 22(1): 1–29. <https://doi.org/10.3390/ijms22010456>
- Rodloff, A., Bauer, T., Ewig, S., Kujath, P. and Müller, E. 2008. Susceptible, intermediate, and resistant - the intensity of antibiotic action. *Dtsch. Arztebl. Int.* 105(39): 657–662. <https://doi.org/10.3238/arztebl.2008.0657>
- Rosalia, M., Chiesa, E., Tottoli, E. M., Dorati, R., Genta, I., Conti, B. and Pisani, S. 2022. Tobramycin nanoantibiotics and their advantages: a minireview. *Int. J. Mol. Sci.* 23(22). <https://doi.org/10.3390/ijms232214080>
- Rotger, R. and Casadesús, J. 1999. The virulence plasmids of *Salmonella*. *Int. Microbiol.* 2(3): 177–184.
- Ruppitsch, W. 2016. Molecular typing of bacteria for epidemiological surveillance and outbreak investigation. *Bodenkultur.* 67(4): 199–224. <https://doi.org/10.1515/boku-2016-0017>
- Saha, S., Sajib, M. S. I., Garrett, D. and Qamar, F. N. 2020. Antimicrobial resistance in typhoidal *Salmonella*: Around the world in 3 days. *Clin. Infect. Dis.* 71(Suppl 2): S91–S95. <https://doi.org/10.1093/cid/ciaa366>
- Salem, B., Ridha, M. and Mahjoub, A. 2012. Laboratory typing methods for diagnostic of *Salmonella* strains, the “old” organism that continued challenges. *Salmonella - A Dangerous Foodborne Pathogen*, January. <https://doi.org/10.5772/29010>



- Samuel, G. and Reeves, P. 2003. Biosynthesis of O-antigens: genes and pathways involved in nucleotide sugar precursor synthesis and O-antigen assembly. *Carbohydr. Res.* 338(23): 2503–2519. <https://doi.org/10.1016/j.carres.2003.07.009>
- Sarkono, S., Moeljopawiro, S., Setiaji, B. and Sembiring, L. 2017. Analysis of whole cell protein profiles by SDS-PAGE to identify indigenous cellulose-producer acetic acid bacteria. *Indones. J. Biotechnol.* 21(2): 86. <https://doi.org/10.22146/ijbiotech.27166>
- Schmitz, F.-J. and Fluit, A. C. 2010. Chapter 131 - Mechanisms of antibacterial resistance. In J. Cohen, S. M. Opal and W. G. Powderly (Eds.), *Infectious Diseases* (3rd ed.), pp. 1308–1322. Mosby, St. Louis. <https://doi.org/10.1016/B978-0-323-04579-7.00131-3>
- Shariati, A., Arshadi, M., Khosrojerdi, M. A., Abedinzadeh, M., Ganjalishahi, M., Maleki, A., Heidary, M. and Khoshnood, S. 2022. The resistance mechanisms of bacteria against ciprofloxacin and new approaches for enhancing the efficacy of this antibiotic. *Front. Public Health.* 10: 1025633. <https://doi.org/10.3389/fpubh.2022.1025633>
- Sharifzadeh, S., Brown, N. W., Shirley, J. D., Bruce, K. E., Winkler, M. E. and Carlson, E. E. 2020. Chemical tools for selective activity profiling of bacterial penicillin-binding proteins. *Methods Enzymol.* 638: 27–55. <https://doi.org/10.1016/BS.MIE.2020.02.015>
- Sharma, D., Patel, R. P., Zaidi, S. T. R., Sarker, M. M. R., Lean, Q. Y. and Ming, L. C. 2017. Interplay of the quality of ciprofloxacin and antibiotic resistance in developing countries. *Front. Pharmacol.* 8: 546. <https://doi.org/10.3389/fphar.2017.00546>
- Sharma, R., Eun Park, T. and Moy, S. 2016. Ceftazidime-avibactam: A novel cephalosporin/β-lactamase inhibitor combination for the treatment of resistant Gram-negative organisms. *Clin. Ther.* 38(3): 431–444. <https://doi.org/10.1016/j.clinthera.2016.01.018>
- Shigle, T. L. and Wehr Handy, V. 2024. 11 - Pharmacology of drugs used in hematopoietic cell transplant and chimeric antigen receptor therapies. In Q. Bashir, E. J. Shpall and R. E. Champlin (Eds.), *Manual of Hematopoietic Cell Transplantation and Cellular Therapies* (pp. 145–165). Elsevier. <https://doi.org/10.1016/B978-0-323-79833-4.00011-5>
- Shoaib, M., Muzammil, I., Hammad, M., Bhutta, Z. A. and Yaseen, I. 2020a. A mini-review on commonly used biochemical tests for identification of bacteria. *Int. J. Res. Publ.* 54(1): 1–6. <https://doi.org/10.47119/ijrp100541620201224>
- Shrestha, S.K. and Basnet, S. 2019. Antibiotic sensitivity pattern in culture positive typhoid fever cases isolated at Patan hospital. *J. Pathol. Nepal.* 9(1): 1450–1452. <https://doi.org/10.3126/jpn.v9i1.23348>



- Silhavy, T.J., Kahne, D. and Walker, S. 2010. The bacterial cell envelope. *Cold Spring Harb. Perspect. Biol.* 2(5): a000414. <https://doi.org/10.1101/cshperspect.a000414>
- Sizar, O., Rahman, S. and Sundareshan, V. 2023. Amikacin - StatPearls - NCBI Bookshelf. (<https://www.ncbi.nlm.nih.gov/books/NBK554894>). Diakses tanggal [18 Juni 2024].
- Smith, A. and Hussey, M. 2016. Gram Stain Protocols. *Am. Soc. Microbiol.* September 2020: 1–9.
- Squadrito, F.J. and Portal, D. del. 2020. Nitrofurantoin - StatPearls - NCBI Bookshelf. (<https://www.ncbi.nlm.nih.gov/books/NBK470526/>). Diakses tanggal [16 Juni 2024].
- Steele-Mortimer, O. 2008. The *Salmonella*-containing vacuole: moving with the times. *Curr. Opin. Microbiol.* 11(1): 38–45. <https://doi.org/10.1016/j.mib.2008.01.002>
- Subari, A., Razak, A. and Sumarmin, R. 2021. Phylogenetic Analysis of *Rasbora* spp. Based on the Mitochondrial DNA COI gene in Harapan Forest. *J. Biol. Trop.* 21(1): 89–94. <https://doi.org/10.29303/jbt.v21i1.2351>
- Supriatin, Y., Sumirat, V.A. and Herdiani, M. 2021. Growth Analysis of *Escherichia coli* and *Salmonella typhi* on MacConkey Agar Modification. *J. Phys. Conf. Ser.* 1764(1). <https://doi.org/10.1088/1742-6596/1764/1/012207>
- Suresh, Y., Kiranmayi, B., Rao, S., Srivani, M., Subhashini, N., Gottapu, C., Vimala, S., and Suresh, B. 2019. Multidrug resistance and ESBL profile of *Salmonella* serovars isolated from poultry birds and foods of animal origin. 8: 277–282.
- Susanti, F.I. and Retnaningrum, E. 2018. Phenotypic identification and numerical taxonomy of pigmented bacteria isolated from marine and freshwater aquatic at Yogyakarta, Indonesia. *Digit. Press Phys. Sci. Eng.* 1: 00003. <https://doi.org/10.29037/digitalpress.11220>
- Syafitri, M., Erina, E., AK, M. D., Ferasyi, T. R., Hamzah, A., Nazaruddin, N., and Ismail, I. 2023. Resistance Testing of *Salmonella* sp. Isolated from Broiler Chicken against Antibiotics. *Jurnal Medika Veterinaria.* 17(1): 15–22. <https://doi.org/10.21157/j.med.vet..v17i1.20301>
- Syah, M.A. 2022. Isolasi dan Karakterisasi Molekuler Gen 16S rRNA Bakteri Lipolitik Asal Limbah Kulit Biji Jambu Mete. *J. Sumberd. Hayati.* 8(1): 20–26. <https://doi.org/10.29244/jsdh.8.1.20-26>
- Tagar, S. and Qambrani, N.A. 2023. Bacteriological quality assessment of poultry chicken meat and meat contact surfaces for the presence of targeted bacteria and determination of antibiotic resistance of *Salmonella* spp. in Pakistan. *Food Control.* 151: 109786. <https://doi.org/10.1016/j.foodcont.2023.109786>
- Tambuwun, J.S., Kolondam, B.J., Tallei, T.E. and Biologi, S. 2017. Variasi Gen matK dan Filogenetik Tumbuhan Kantong Semar (*Nepenthes* sp.) dari



- Gunung Mahawu dan Gunung Soputan di Sulawesi Utara. *J. Bioslogos*. 7(1): 1–8.
- Teh, C.S.J., Chua, K.H. and Thong, K.L. 2014. Paratyphoid fever: splicing the global analyses. *Int. J. Med. Sci.* 11(7): 732–741. <https://doi.org/10.7150/ijms.7768>
- Teklemariam, A.D., Al-Hindi, R.R., Albiheyri, R.S., Alharbi, M.G., Alghamdi, M.A., Filimban, A.A.R., Al Mutiri, A.S., Al-Alyani, A.M., Alsegheyer, M.S., Almaneea, A.M., Albar, A.H., Khormi, M.A. and Bhunia, A.K. 2023. Human Salmonellosis: A Continuous Global Threat in the Farm-to-Fork Food Safety Continuum. *Foods*. 12(9). <https://doi.org/10.3390/foods12091756>
- Texas Department of State Health Services. 2018. Emerging and Acute Infectious Disease Guidelines (EAIDG) (Issue 6). Texas Department of State Health Services.
- Thompson, J.D., Higgins, D.G. and Gibson, T.J. 1994. CLUSTAL W: improving the sensitivity of progressive multiple sequence alignment through sequence weighting, position-specific gap penalties and weight matrix choice. *Nucleic Acids Res.* 22(22): 4673–4680. <https://doi.org/10.1093/nar/22.22.4673>
- Thong, K.L., Cheong, Y.M., Puthucheary, S., Koh, C.L. and Pang, T. 1994. Epidemiologic analysis of sporadic *Salmonella typhi* isolates and those from outbreaks by pulsed-field gel electrophoresis. *J. Clin. Microbiol.* 32(5): 1135–1141. <https://doi.org/10.1128/jcm.32.5.1135-1141.1994>
- Thong, K.L., Cordano, A.M., Yassin, R.M. and Pang, T. 1996. Molecular analysis of environmental and human isolates of *Salmonella typhi*. *Appl. Environ. Microbiol.* 62(1): 271–274. <https://doi.org/10.1128/aem.62.1.271-274.1996>
- Thong, K.L., Goh, Y.L., Yasin, R.M., Lau, M.G., Passey, M., Winston, G., Yoannes, M., Pang, T. and Reeder, J.C. 2002. Increasing genetic diversity of *Salmonella enterica* serovar *typhi* isolates from Papua New Guinea over the period from 1992 to 1999. *J. Clin. Microbiol.* 40(11): 4156–4160. <https://doi.org/10.1128/JCM.40.11.4156-4160.2002>
- Thong, K.L., Nair, S., Subramaniam, G., Puthucheary, S., Yassin, R., Cheong, Y.M., Liu, S.L., Sanderson, K.E., Cordano, A.M., Pang, T., Sudarmono, P., Soewandojo, E., Handojo, I., Padmidewi, M., Sarasombath, S., Passey, M., Combs, B. and Chaudhry, R. 1998. Genetic dynamics and molecular epidemiology of *Salmonella typhi*. *Med. J. Indones.* 7(October): 147–150. <https://doi.org/10.13181/mji.v7iSupp1.1062>
- Tikoo, A., Tripathi, A., Verma, S., Agrawal, N. and Nath, G. 2001. Application of PCR fingerprinting techniques for identification and discrimination of *Salmonella* isolates. *Curr. Sci.* 80: 1049–1052.
- Toprak, D. and Erdoğan, S. n.d. Spatial Analysis Of The Distribution Of Typhoid Fever In Turkey.



- Towner, K.J. and Cockayne, A. 1995. Molecular Methods for Microbial Identification and Typing. Chapman and Hall.
- Trotta, A., Del Sambro, L., Galgano, M., Ciccarelli, S., Ottone, E., Simone, D., Parisi, A., Buonavoglia, D., and Corrente, M. 2021. *Salmonella enterica* subsp. *Houtenae* associated with an abscess in young roe deer (*Capreolus capreolus*). *Pathogens* 10(6): 1–11. <https://doi.org/10.3390/pathogens10060654>
- Tsen, H. Y., Lin, J. S. and Hsieh, H. Y. 2002. Pulsed field gel electrophoresis for animal *Salmonella enterica* serovar *typhimurium* isolates in Taiwan. *Vet. Microbiol.* 87(1): 73–80. [https://doi.org/10.1016/S0378-1135\(02\)00020-2](https://doi.org/10.1016/S0378-1135(02)00020-2)
- Tuckman, M., Petersen, P. J. and Projan, S. J. 2000. Mutations in the interdomain loop region of the tetA(A) tetracycline resistance gene increase efflux of minocycline and glycylcyclines. *Microb. Drug Resist.* 6(4): 277–282. <https://doi.org/10.1089/mdr.2000.6.277>
- Turner, A. K., Nair, S. and Wain, J. 2006. The acquisition of full fluoroquinolone resistance in *Salmonella typhi* by accumulation of point mutations in the topoisomerase targets. *J. Antimicrob. Chemother.* 58(4): 733–740. <https://doi.org/10.1093/jac/dkl333>
- Vala, S., Shah, U., Ahmad, S. A., Scolnik, D. and Glatstein, M. 2016. Resistance patterns of typhoid fever in children: A longitudinal community-based study. *Am. J. Ther.* 23(5): e1151–e1154. <https://doi.org/10.1097/MJT.0000000000000094>
- Van Belkum, A., Struelens, M., De Visser, A., Verbrugh, H. and Tibayrenc, M. 2001. Role of genomic typing in taxonomy, evolutionary genetics, and microbial epidemiology. *Clin. Microbiol. Rev.* 14(3): 547–560. <https://doi.org/10.1128/CMR.14.3.547-560.2001>
- Vandamme, P., Pot, B., Gillis, M., de Vos, P., Kersters, K. and Swings, J. 1996. Polyphasic taxonomy, a consensus approach to bacterial systematics. *Microbiol. Rev.* 60(2): 407–438. <https://doi.org/10.1128/mr.60.2.407-438.1996>
- Vaniana, D. and Putri, D. H. 2019. Analysis internal primer of genes *16S rRNA* endophytic bacteria producing compound antimicrobial for sequencing. *Bio Sains.* 4(1): 54–62.
- Virdi, J. S. and Sachdeva, P. 2005. Genetic diversity of pathogenic microorganisms: Basic insights, public health implications and the Indian initiatives. *Curr. Sci.* 89(1): 113–123.
- Wain, J., Hien, T. T., Connerton, P., Ali, T., Parry, C. M., Chinh, N. T. T., Vinh, H., Phuong, C. X. T., Ho, V. A., Diep, T. S., Farrar, J. J., White, N. J. and Dougan, G. 1999. Molecular typing of multiple-antibiotic-resistant *Salmonella enterica* serovar *typhi* from Vietnam: Application to acute and relapse cases of typhoid fever. *J. Clin. Microbiol.* 37(8): 2466–2472. <https://doi.org/10.1128/jcm.37.8.2466-2472.1999>



- Walsh, C. and Wencewicz, T. 2016. Antibiotics: Challenges, mechanisms, opportunities. In *Antibiotics*. American Society for Microbiology. <https://doi.org/10.1128/9781555819316.ch7>
- Wang, X., Jordan, I. K. and Mayer, L. W. 2014. A phylogenetic perspective on molecular epidemiology. In *Molecular Medical Microbiology*. Elsevier Ltd., Amsterdam. <https://doi.org/10.1016/B978-0-12-397169-2.00029-9>
- Wilson, D. N. 2016. The ABC of ribosome-related antibiotic resistance. *MBio* 7(3): 5–7. <https://doi.org/10.1128/mBio.00598-16>
- Wittmeier, P. and Hummel, S. 2022. Agarose gel electrophoresis to assess PCR product yield: Comparison with spectrophotometry, fluorometry and qPCR. *Biotechniques*. 72(4): 155–158. <https://doi.org/10.2144/btn-2021-0094>
- Wöhlert, D., Grötzinger, M. J., Kühlbrandt, W. and Yıldız, Ö. 2015. Mechanism of Na(+) -dependent citrate transport from the structure of an asymmetrical CitS dimer. *eLife*. 4: e09375. <https://doi.org/10.7554/eLife.09375>
- World Health Organization. 2017. Stop using antibiotics in healthy animals to prevent the spread of antibiotic resistance. (<https://www.who.int/news-room/detail/07-11-2017-stop-using-antibiotics-in-healthy-animals-to-prevent-the-spread-of-antibiotic-resistance>). Diakses tanggal [08 Mei 2024].
- World Health Organization. 2018. Typhoid and other invasive salmonellosis vaccine-preventable diseases. (Link not available). Diakses tanggal [22 April 2024].
- World Health Organization. 2022. Nontyphoidal *Salmonella* disease. Immunization, vaccines and biologicals. (<https://www.who.int/teams/immunization-vaccines-and-biologicals/diseases/nontyphoidal-Salmonella-disease>). Diakses tanggal [22 April 2024].
- World Health Organization. 2023. Typhoid. (<https://www.who.int/news-room/fact-sheets/detail/typhoid>). Diakses tanggal [22 April 2024].
- Yang, B., Wang, Y. and Qian, P.Y. 2016. Sensitivity and correlation of hypervariable regions in 16S rRNA genes in phylogenetic analysis. *BMC Bioinformatics*. 17(1): 135. <https://doi.org/10.1186/s12859-016-0992-y>
- Yang, C. Y., Hsu, C. Y., Fang, C. S., Shiau, C. W., Chen, C. S. and Chiu, H. C. 2019. Loxapine, an antipsychotic drug, suppresses intracellular multiple-antibiotic-resistant *Salmonella enterica* serovar *typhimurium* in macrophages. *J. Microbiol. Immunol. Infect.* 52(4): 638–647. <https://doi.org/10.1016/j.jmii.2019.05.006>
- Yang, M.-Q., Wang, Z.-J., Zhai, C.-B. and Chen, L.-Q. 2024. Research progress on the application of 16S rRNA gene sequencing and machine learning in forensic microbiome individual identification. *Front. Microbiol.* 15. <https://doi.org/10.3389/fmicb.2024.1360457>



- Yeung, P. S. M., Sanders, M. E., Kitts, C. L., Cano, R. and Tong, P. S. 2002. Species-specific identification of commercial probiotic strains. *J. Dairy Sci.* 85(5): 1039–1051. [https://doi.org/10.3168/jds.S0022-0302\(02\)74164-7](https://doi.org/10.3168/jds.S0022-0302(02)74164-7)
- Yocom, R. R., Rasmussen, J. R. and Strominger, J. L. 1980. The mechanism of action of penicillin. Penicillin acylates the active site of *Bacillus stearothermophilus* D-alanine carboxypeptidase. *J. Biol. Chem.* 255(9): 3977–3986.
- Yoon, K. B., Song, B. J., Shin, M. Y., Lim, H. C., Yoon, Y. H., Jeon, D. Y., Ha, H., Yang, S. I., and Kim, J. B. 2017. Antibiotic resistance patterns and serotypes of *Salmonella* spp. isolated at Jeollanam-do in Korea. *Osong Public Health and Research Perspectives.* 8(3): 211–219. <https://doi.org/10.24171/j.phrp.2017.8.3.08>
- Yu, H., Hanes, M., Chrisp, C. E., Boucher, J. C. and Deretic, V. 1998. Microbial pathogenesis in cystic fibrosis: pulmonary clearance of mucoid *Pseudomonas aeruginosa* and inflammation in a mouse model of repeated respiratory challenge. *Infect. Immun.* 66(1): 280–288. <https://doi.org/10.1128/IAI.66.1.280-288.1998>
- Yuliani, N. N., Fatmawati, B., Dharma, S. J. and Budiana, B. I. G. M. N. 2020. Contamination test of *Salmonella* sp. in household industry white tofu Naimata Kupang. *J. Mat. Sains Pembelajarannya.* 14(1): 16–27.
- Zhou, K., Sun, L., Zhang, X., Xu, X., Mi, K., Ma, W., Zhang, L. and Huang, L. 2023. *Salmonella* antimicrobials inherited and the non-inherited resistance: mechanisms and alternative therapeutic strategies. *Front. Microbiol.* 14, 1176317. <https://doi.org/10.3389/fmicb.2023.1176317>
- Zil-e-Huma, Tareen, A.M., Samad, A., Mustafa, M.Z., Maryam, M., Rizwan, S. and Akbar, A. 2022. Immunogenic protein profiling of pathogenic *Escherichia coli* strains isolated from infants with diarrhea in Quetta Balochistan. *J. King Saud Univ. Sci.* 34(3), 101883. <https://doi.org/10.1016/j.jksus.2022.101883>