

## DAFTAR PUSTAKA

- Abdollahi, Z., Zeinoaldini, S., Zhandi, M., Towhidi, A., Baghshahi, H. 2021. Supplementation of plant-based cryopreservation medium with folic acid conserves the quality of bulk post-thawed spermatozoa. *Arch Razi Inst.* 76(3): 553-559. doi: 10.22092/ari.2020.351865.1541.
- Achlis, R., H. Anwar, S. Hidanah dan P. Srianto. 2013. Kualitas semen beku kambing peranakan etawa dalam berbagai macam pengencer. *Veterinaria Medika.* 6(1), 69-74.
- Adiputra, K. D. D., S. Sukandi, S. Farida, H. Sonjaya and H. Hasbi. 2023. Progressive motility, DNA fragmentation, intact plasma membrane, and acrosome status of frozen semen bali and simmental bulls. *Hasanuddin J. Anim. Sci.* 4(2): 109-118. DOI:10.2095/hajas.v4i2.23351
- Agarwal, A., M. P.K. Selvam, & S. Baskaran. 2020. Proteomic analyses of human sperm cells: Understanding the role of proteins and molecular pathways affecting male reproductive health. *Int. J. Molec. Sci.* 21(5):1-21. <https://doi.org/10.3390/ijms21051621>
- Aghazarian, A., W. Huf, H. Pflüger, & T. Klatte. 2019. Standard semen parameters vs. Sperm kinematics to predict sperm DNA damage. *World J. Mens Health.* 37(1):116-122. <https://doi.org/10.5534/WJMH.190095>.
- Aghazarian, A., W. Huf, H. Pflüger, & T. Klatte. 2021. Standard Semen Parameters vs. Sperm Kinematics to Predict Sperm DNA Dama Standard Semen Parameters vs. Sperm Kinematics to Predict Sperm DNA Damage. *World J Mens Health.* 39(1):116-122.
- Aini, K., Suharyati, S. dan Hartono, M. 2014. Pengaruh jarak straw dengan nitrogen cair pada proses pre freezing terhadap kualitas semen beku sapi limosin. *Jurnal Ilmiah Peternakan Terpadu.* 2(3), 62-70. DOI: <http://dx.doi.org/10.23960/jipt.v2i3.p%25p>
- Aitken, R. J., & G. N. D. Iuliis. 2010. On the possible origins of DNA damage in human spermatozoa. *Molecular Human Reproduction.* 16(1) :3–13.
- Akbar, M., A. Malik, Fitriani, & Sakiman. 2022. Lama penyimpanan semen beku sapi peranakan ongole (PO) dalam N2 cair terhadap motilitas viabilitas spermatozoa. Diploma thesis, Universitas Islam Kalimantan.
- Akhter, S., B. A. Rakha, R. Iqbal, and M. S. Ansari. 2014. Effect of bovine serum albumin on motility, plasmalemma, viability and chromatin integrity of buffalo bull spermatozoa. *Pak. J. Zool.* 46: 115–120.
-  Spermatogenesis dan Fertilisasi (Komponen-Komponen yang amnya). Syiah Kuala University Press. Banda Aceh.
- ni, A. P. A. Yekti, & T. Susilawati. 2022. Study of the quality and spermatozoa acrosome caps in frozen sexing semen Friesian cattle. *Jurnal Ilmu-Ilmu Peternakan.* 32(2):233-240. <https://doi.org/10.21776/ub.jiip.2022.032.02.09>.

- Alipour, H., Horst, G.V.D., Christiansen, O.B., Dardmeh, F., Jørgensen, N., Nielsen, H.I., Hnida, C. 2017. Improved sperm kinematics in semen samples collected after 2 h versus 4-7 days of ejaculation abstinence. *Hum Reprod.* 32(7): 1364-1372. doi: 10.1093/humrep/dex101.
- Allouche, L., T. Madani, M. Mechmeche, L. Clement, & A. Bouchimal. 2017. Bull fertility and its relation with density gradient selected sperm. *Int. J. Fertil. Steril.* 11(1):55-62. <https://doi.org/10.22074/ijfs.2016.4721>.
- Alves, M. B. R., Celeghini, E. C. C. and Belleannee, C. 2020. From sperm motility to sperm-borne microRNA signatures: new approaches to predict male fertility potential. *Front Cell Dev Biol.* 8:791, 1-16. DOI: 10.3389/fcell.2020.00791
- Amanda K, 2019. Optimasi Suhu Annealing Proses PCR Amplifikasi Gen shv Bakteri Escherichia coli Pasien Ulkus Diabetik. *Jurnal Mahasiswa Farmasi Fakultas Kedokteran UNTAN;* 4(1): 10-16
- Amaral, M. J. D., M. H. O. Freire, M. S. Almeida, A. S. Pinheiro, & Y. Cordeiro. 2022. Review Article: Phase separation of the mammalian prion protein: Physiological and pathological perspectives. *Journal of Neurochemistry.* DOI: 10.1111/jnc.15586
- Andaruisworo, S., A. Tanjungsari, E. Yunianti, & A.R. Khairullah. 2023. Diluent and storage time effect on sperm abnormality and mda level in muscovy duck semen at 27°C. *Jurnal Medik Veteriner.* 6(3): 79-90.
- Anwar, A. 2019. Pengaruh medium dan lama inkubasi dalam proses sexing sperma terhadap kualitas semen kambing Boer. *Jurnal Ilmu Ternak Universitas Padjadjaran.* 19(1):53-61. <https://doi.org/10.24198/jit.v19i1.23009>.
- Arifiantini, R. I. 2012. Teknik Koleksi dan Evaluasi Semen Pada Hewan. Bogor: IPB Press. 6-10.
- Auger, J., P. Jouannet, & F. Eustache. 2016. Another look at human sperm morphology. *Hum. Reprod.* 31(1):1-14. <https://doi.org/10.1093/humrep/dev251>.
- Azzahra, F. Y., E.T. Setiatin, & D. Samsudewa. 2016. Evaluasi motilitas dan persentase hidup semen segar sapi po kebumen pejantan muda. *Jurnal Sain Peternakan Indonesia.* 11(2): 99-107
- Baco, S., Zulkarnaim, R. Malaka, and G.R. Moekti. 2020. *Polled* Bali cattle and potentials for the development of breeding industry in indonesia. Hasanuddin Journal of Animal Science. 2(1), 23-33.
- Raharun, A., H. Iskandar, A. Rahmi, R. Handarini, I. Darussalam, T. Maulana, S. Said, ley, & R. I. Arifiantini. 2023. Semen quality and frozen semen Pasundan bulls: A molecular weight perspective on seminal spermatozoa protein. *Journal Of Advanced Veterinary And Research.* 10(4): 730-737. DOI: 10.5455/javar.2023.j728.



- Brinsko, S. P., T. L. Blanchard, D. D. Varner, J. Schumacher, C. Love, K. Hinrichs, & D. L. Hartman. 2011. Chapter 13 - Examination of the Stallion for Breeding Soundness. Third Edition: Manual of Equine Reproduction. Hal. 176-206. <https://www.sciencedirect.com/book/9780323064828/manual-of-equine-reproduction#book-info>
- Bustari, Oswin, W., dan Susilawati, T. 2019. Ketepatan Pedet Jantan Hasil Inseminasi Buatan Menggunakan Semen Sexing Dobel Dosis Pada Sapi Persilangan Ongole. Sarjana thesis, Universitas Brawijaya.
- Cahya, R.I., Y.S. Ondho, & E.T. Setiatin. 2017. Persentase membran plasma utuh dan tudung akrosom utuh spermatozoa kambing peranakan etawah dalam pengencer yang berbeda. Seminar Nasional: Sekolah Tiggi Penyusunan Pertanian (STPP) Magelang.
- Chakraborty, S., & S. Saha. 2022. Understanding sperm motility mechanisms and the implication of sperm surface molecules in promoting motility. Middle East Fertility Society Journal. 27(4):1-12. <https://doi.org/10.1186/s43043-022-00094-7>
- Cheema, S. R., & Babbar, B. K. 2008. Sperm membrane/seminal plasma proteins reflects semen quality in cross-bred cattle bulls. Indian J. Anim. Res. 42(4): 242-247.
- Chiriva-Internati, M., N. Gagliano, E. Donetti, F. Costa, F. Grizzi, B. Franceschini, E. Albani, P. E. Levi-Setti, M. Gioia, M. Jenkins, E. Cobos, & W. M. Martin. 2009. Sperm protein 17 is expressed in the sperm fibrous sheath. J. Transl. Med. 7(61): 1-5. <https://doi.org/10.1186/1479-5876-7-61>.
- Cocchia, N., Pasolini, M. P., Mancini, R., Petrazzuolo, O., Cristofaro, I., Rosapane, I., Sica, A., Tortora, G., Lorizio, R., Paraggio, G. and Mancini A. 2011. Effect of sod (superoxide dismutase) protein supplementation in semen extenders on motility, viability, acrosome status and ERK (ekstraselular signal-regulated kinase) protein phosphorylation of chilled stallion spermatozoa. Theriogenology, 75, 1201-1210. DOI: 10.1016/j.theriogenology.2010.11.031.
- Djuwantono, T. 2015. Pentingnya pemeriksaan fragmentasi DNA spermatozoa untuk evaluasi infertilitas pada pasien IVF-ICSI. Dalam: Prosiding Pertemuan Ilmiah Berkala Himpunan Endokrinologi Reproduksi dan Fertilitas Indonesia. 31 Januari-4 Februari 2015. USU Press, Medan. Hal. 280-297.
- Dyk, V. Q., Mahony, M. C., and Hodgen, G. D. 2001. Differential binding of X- and Y-chromosome-bearing human spermatozoa to zona pellucida in vitro. *Andrologia* 33, 199–205. doi: 10.1046/j.1439-0272.2001.00427.x



and K. Reinhardt. 2017. More pitfalls with sperm viability staining y-based stress test to characterize sperm quality. Frontiers in and Evolution. 5: 1-14. DOI: /10.3389/fevo.2017.00165.

karomah, S. N. Ethica. 2018. Profil protein berbasis sds-page u hasil pengeringan dengan garam dan tanpa garam. Seminar sainstek.

- Fannessia, L. D., Karja, N. W. K., Adnyane, I. K. M. dan Setiadi, M. A. 2015. Pelacakan kerusakan akrosom spermatozoa domba selama proses pembekuan dengan teknik histokimia lektin. Jurnal Veteriner. 16.(4), 560-568. DOI: 10.19087/jveteriner.2015.16.4.560
- Gautier, C., & Aurich, C. 2021. "Fine feathers make fine birds" - The mammalian sperm plasma membrane lipid composition and effects on assisted reproduction. Anim Reprod Sci. 246:106884. doi: 10.1016/j.anireprosci.2021.106884.
- Goshme S, Asfaw T, Demiss C, Besufekad S. 2021. Evaluation of motility and morphology of frozen bull semen under different thawing methods used for artificial insemination in North Shewa zone, Ethiopia. Heliyon. 7(10): e08183. doi: 10.1016/j.heliyon.2021.e08183.
- Gunawan, M., E. M. Kaiin dan Said, S. 2015. Aplikasi inseminasi buatan dengan spermatozoa sexing dalam meningkatkan produktivitas sapi di peternakan rakyat. Pros Sem Nas Masy Biodiv Indon. 1(1), 93-96. DOI: 10.13057/PSNMBI/M010115
- Handayani, E., Supriatna, I., Tumbelaka L.I. dan Kaiin, E. M. 2021. Analisis komparatif kualitas semen beku yang telah dan belum bersertifikasi standar nasional Indonesia. Jurnal Veteriner. 22(2), 207-215. DOI: 10.19087/jveteriner.2021.22.2.207
- Hanifi, H., M. N. Ihsan dan T. Susilawati. 2016. Pengaruh lama ekuilibrasi pada proses pembekuan terhadap kualitas semen sapi wagyu menggunakan pengencer andromed. J. Ternak Tropika. 17(1), 31-41. DOI: <https://doi.org/10.21776/ub.jtapro.2016.017.01.4>
- Hasbi, H., M.I.A. Dagong, Z. Zulkharnain, S. Baba, H. Sonjaya, S. Baco, S. Gustina, T. Maulana, M. Gunawan, P. P. Agung, N. Herlina, N.D. Yanthi, E.M. Kaiin, and S. Said. 2023. Comparison of Fresh and Cryopreserved Semen Quality of Polled and Horned Bali Bull. IJAS. 13(1), 33-41.
- Hoek V. D. M., Rickard J. P., & De Graaf S. P. 2022. Motility Assessment of Ram Spermatozoa. Biology (Basel). 11(12): 1-26. Doi: 10.3390/biology11121715.
- Holden, S. A., & S. T. Butler. 2018. Review: Applications and benefits of sexed semen in dairy and beef herds. Animal. 12(s1):s97-s103. <https://doi.org/10.1017/S1751731118000721>.
- Indrawati, S. D. Volkandari dan E. T. Margawati. 2020. Aplikasi penciri molekuler uty dan sry untuk determinasi unknown sex samples pada sapi bali. Jurnal Ilmu Dasar. 21(1): 55-60.
- Ihsan & N. Isnaini. 2015. Pengaruh berbagai metode thawing litas semen beku kambing peranakan etawa (PE). Universitas al. 1-9.
- Iwan, M., Octaviana, S. dan Nuswantara, S. 2017. Verifikasi metode sexing spermatozoa sapi dengan kolom BSA (bovine



- serum albumin). Dalam: Pros Sem Nas Masy Biodiv Indon, 2 Mei 2017, 3(2), 241-245. DOI: 10.13057/psnmbi/m030214.
- Kamaruddin, M., T. Kroetsch, P. K. Basrur, P. J. Hansen, and W. A. King. 2004. Immunolocalization of heat shock protein 70 in bovine spermatozoa. *Andrologia*. 36: 327–334.
- Khan, I. M., Z. Cao, H. Liu, A. Khan, S.U. Rahman, M.Z. Khan, A. Sathanawongs, & Y. Zhang. 2021. Impact of cryopreservation on spermatozoa freeze-thawed traits and relevance omics to assess sperm cryo-tolerance in farm animals. *Front Vet Sci*. 25(8): 1-14.
- Kurtz, S., & Petersen, B. 2015. Pre-determination of sex in pigs by application of CRISPR/Cas system for genome editing. *Theriogenology*. Doi: <https://doi.org/10.1016/j.theriogenology.2019.05.039>
- Kusumawati, E. D. 2015. *Sexing Spermatozoa pada Kambing*. Media Nusa Creative. Malang.
- Kusumawati, E. D., A. T. N. Krisnaningsih, Y. P. U. Lele. 2017. Motilitas dan viabilitas spermatozoa semen sexing menggunakan metode sedimentasi putih telur dengan pengencer yang berbeda. Seminar Nasional Hasil Penelitian Universitas Kanjuruhan Malang.
- Love, C. C. 2012. review article: Measurement of concentration and viability in stallion sperm. *Journal of Equine Veterinary Science*. 32: 464-466. DOI: <http://dx.doi.org/10.1016/j.jevs.2012.06.015>.
- Luzardin, Saili, T. dan Aku, A. S. 2020. Hubungan lama waktu seksi dengan kualitas spermatozoa sapi Bali (*bos sondaicus*) pada medium *sexing* tris-kuning telur. *JIPHO*. 2(1), 15-18.
- Mahfud, A., Isnaini, N., Yekti, APA., Kuswati dan Susilawati, T. 2019. Kualitas spermatozoa post thawing semen beku spermatozoa Y hasil *sexing* pada sapi limosin. *J. Ternak Tropika*. 20(1), 1-7.
- Maulana, T., R. Ridwan, M. Gunawan, P. P. Agung, F. Afifi, E. M. Kaiin and S. Said. 2022. Successful separation of X- and Y-spermatozoa ongoole crossbreed using a nano-albumen gradient column. *Tropical Animal Science Journal*. 45 (4),397-404. DOI: <https://doi.org/10.5398/tasj.2022.45.4.397>
- Menon, A. G., H. W. Barkema, R. Wilde, J. P. Kastelic, & J. C. Thundathil. 2011. Association between sperm abnormalities, breed, age, and scrotal circumference in beef bulls. *Can. J. Vet. Res.* 75(4):241-247.

- Meseguer, M., Santiso, R., Garrido, N., Garcia-Herrero, S., Remohi, J. And L. 2011. Effect of sperm DNA fragmentation on pregnancy ends on oocyte quality. *Fertility and Sterility*. 95(1), 124-128. <https://doi.org/10.1016/j.fertnstert.2010.05.055>
- MH, Eskandari N. Quantitative evaluation of human sperm MTT assay: A laboratory study. *Int J Reprod Biomed*. 18(11): 10.18502/ijrm.v13i11.7966.

- Moskovtsev S.I, Willis J, White J, Mullen J.B. 2009. Sperm DNA damage: correlation to severity of semen abnormalities. *Urology*. 74(4):789-93. doi: 10.1016/j.urology.2009.05.043.
- Moura, A. A., & E. Memili. 2016. Functional aspects of seminal plasma and sperm proteins and their potential as molecular markers of fertility. *Anim. Reprod.* 13(3):191-199. <https://doi.org/10.21451/1984-3143-AR884>.
- Muhammad, D. T. Susilowati, & S. Wahjuningsih. 2016. Pengaruh penggunaan cep-2 dengan suplementasi kuning telur terhadap kualitas spermatozoa sapi FH (Frisian Holstein) kualitas rendah selama penyimpanan suhu 4-5°C. *Journal of Tropical Animal Production*. 17(1):66-76. <https://doi.org/10.21776/ub.jtapro.2016.017.01.8>.
- Naaby-Hansen, S., & J. C. Herr. 2010. Heat shock proteins on the human sperm surface. *J. Reprod. Immunol.* 84(1):32-40. <https://doi.org/10.1016/j.jri.2009.09.006>
- Nagy, Á., Polichronopoulos, T., Gáspárdy, A., Solti, L., Cseh, S. 2015. Correlation between bull fertility and sperm cell velocity parameters generated by computer-assisted semen analysis. *Acta Vet Hung.* 63 (3): 370-381. DOI: 10.1556/004.2015.035.
- Nofa, Y., Karja, N. W. K. dan Arifiantini, R. I. 2017. Status akrosom dan kualitas post thawed spermatozoa pada beberapa rumpun sapi dari dua balai inseminasi buatan. *Acta Vet. Indones.* 5(2), 81-88.
- O'Donnell L, Smith L.B., & Reboucet D. 2022. Sperm-specific proteins: new implications for diagnostic development and cancer immunotherapy. *Curr Opin Cell Biol.* 77:102104. doi: 10.1016/j.ceb.2022.102104.
- Ortega, E. A., V. A. Ruthig and M. A. Ward. 2015. Sry-independent overexpression of sox9 supports spermatogenesis and fertility in the mouse. *Biology Of Reproduction*. 93(6): 1-12. DOI 10.1093/biolreprod.115.135400
- Oyeyipo I.P, V.D. Linde M, D. Plessis S.S. 2017. Environmental exposure of sperm sex-chromosomes: a gender selection technique. *Toxicol Res.* 33(4): 315-323. DOI: 10.5487/TR.2017.33.4.315.
- Palacin I, P. Santolaria, C. Alquezar-Baeta, C. Soler, M. A. Silvestre, J. Yániz. 2020. Relationship of sperm plasma membrane and acrosomal integrities with sperm morphometry in *Bos taurus*. *Asian J Androl.* 22(6):578-582. doi: 10.4103/aja.aja\_2\_20. PMID: 32341212; PMCID: PMC7705972.
- Palmer, J.S., and D. Wilhelm. 2013. Reference Module in Life Sciences: Brannier's Encyclopedia of Genetics (Second Edition): Sex Determination, Mouse. 405-407. DOI: <https://doi.org/10.1016/B978-0-12-374984-4.00020-1>
- Palacin I, P. Santolaria, C. Alquezar-Baeta, C. Soler, M. A. Silvestre, J. Yániz, & S. Hoyer-Fender. 1999. Outer dense fibre proteins from the sperm tail: Molecular cloning and expression analyses of two cDNA coding proteins of ~70 kDa. *Mol. Hum. Reprod.* 5(7):627-635. DOI: <https://doi.org/10.1093/molehr/5.7.627>.



- Pindaru, L., I. M. Balaci dan I. S. Groza. 2016. Sperm sexing technology-new direction in medicine. Revista Română de Medicină de Laborator. 24(1), 111-121. DOI: 10.1515/rrlm-2016-0012
- Prasodo, G., I. Arifiantini dan K. Mohamad. 2010. Korelasi antara lama kebuntingan, bobot lahir dan jenis kelamin pedet hasil inseminasi buatan pada sapi bali. Jurnal Veteriner. 11(1), 41-45.
- Pratap, H., S. Y. Hottigoudar, K. D. Nichanahalli and P. Chand. 2017. Assessment of sperm deoxyribose nucleic acid fragmentation using sperm chromatin dispersion assay. J. Pharmacol Pharmacother. 8(2): 45–49. doi: 10.4103/jpp.JPP\_187\_16
- Pratiwi, T. R. I., S. Suharyati, dan M. Hartono. 2014. Analisis kualitas semen beku sapi simmental menggunakan pengencer andromed® dengan variasi waktu pre freezing. Jurnal Ilmiah Peternakan Terpadu. 2(3): 8-15. doi:10.23960/jipt.v2i3.496.
- Priyanto, I., Budiyanto, A., Kusumawati, A., Kurniasih dan Arifiantini, I. 2018. Perbandingan pemeriksaan kerusakan DNA spermatozoa post hawing antara sperm-bos-halomax® dan toluidine blue. Jurnal Peternakan Sriwijaya. JPS. 7(1), 30-39.
- Priyanto, L. 2023. The reproductive success of Simmental bovine after sex-sorting under various incubation and centrifugation protocols. Veterinary World, 16(3): 631-637.
- Priyanto, L., R. I. Arifiantini, & T. L. Yusuf. 2015. Deteksi kerusakan dna spermatozoa semen segar dan semen beku sapi menggunakan pewarnaan toluidine blue. Jurnal Veteriner. 16(1): 48-55.
- Purwantara, B., Arifiantini, I., Karja, I. W. K., Pardede, B. P., Indriastuti, R., Satrio, A. dan Memili, E. 2022. Pengembangan penanda fertilitas sebagai alat bantu “akurat” dalam upaya optimalisasi sapi pejantan unggul dalam program inseminasi buatan. Policy Brief. Direktorat Publikasi Ilmiah dan Informasi Strategis. 4(1), 1-7. DOI: 10.29244/Agro-Maritim.v4.i1.10.
- Purwoistri, R. F., T. Susilawati, & S. Rahayu. 2013. Membran spermatozoa hasil seksing gradien albumin berpengencer andromed dan cauda epididymal plasma-2 ditambahkan kuning telur. Jurnal Veteriner September. 14(3): 371-378.
- Putra, I., Syafrizal, & D. Dianti. 2019. Pengaruh frekuensi pengambilan straw semen beku terhadap motilitas spermatozoa dan angka kebuntingan inseminasi buatan sapi turunan simental di Kecamatan Lintau Buo Utara. Jurnal Embrio.



ago, B. Matos, A. Rocha, G. Lopes, M. Fardilha. 2021. Bovine sexing: Sperm membrane proteomics as candidates for sex selection of X- and Y-chromosome-bearing sperm. Vet Med 3-1641. DOI: 10.1002/vms3.540.

- Rahman M. S., & M.G. Pang. 2020. New Biological insights on X and Y chromosome-bearing spermatozoa. *Front. Cell Dev. Biol.* 7:388.
- Rahman, M. D. R., J. S. Lee, W. S. Kwon, and M. G. Pang. 2013. Review article sperm proteomics: road to male fertility and contraception. Hindawi Publishing Corporation. *International Journal of Endocrinology*. DOI: <http://dx.doi.org/10.1155/2013/360986>.
- Rahmiati, K. Eriani, dan Dasrul. 2015. Morfologi abnormal spermatozoa sapi Aceh pada berbagai frekuensi ejakulasi. Prosiding Seminar Nasional Biotik.
- Ratnawati, D., & F. Firdaus. 2021. Viability and abnormality of sexed spermatozoa with albumin gradient in different diluents and antioxidants treatment. *IOP Conference Series: Earth and Environmental Science*. 807:042030.
- Ratnawati, D., M. Luthfi, D. Pamungkas and L. Affandhy. 2020. Motility characterization of albumin sexed spermatozoa in two different diluents and additional antioxidant. *J. Indonesian Trop. Anim. Agric.* 45(4): 277-286. DOI: 10.14710/jitaa.45.4.277-286.
- Ratnawati, D., N. Isnaini, dan T. Susilawati. 2017. Pemanfaatan casa dalam observasi motilitas spermatozoa semen cair sapi Madura dalam pengencer berbeda. *Jurnal Ilmu-Ilmu Peternakan* 27 (1): 80-95.
- Richards, J.E. and R. S. Hawley. 2011. *The Human Genome (Third Edition): Chapter 8-Sex Determination: How Genes Determine a Developmental Choice*. Academic Press. 273-298. DOI: <https://doi.org/10.1016/B978-0-08-091865-5.00008-4>
- Ristiani, W. A., M. Yunus, T.W. Suprayogi, P. Srianto, I. Mustofa, & Rimayanti. 2020. Kualitas spermatozoa post-thawing pejantan sapi Friesian Holstein pada umur yang berbeda. *Ovozoa*. 9(1): 12-17.
- Rosadi, B., ., Sumarsono, T., Hoesni, F. Dan Darmawan. 2018. Angka konsepsi kerbau lumpur hasil ib konvensional dan diai menggunakan semen sexing. *Buku Panduan Seminar Nasional Pengembangan Pertanian Berkelinjutan Berbasis Sumberdaya Lokal*.
- Rosyada, Z. N. A., M. F. Ulum, L. I. T. A. D. D. Tumbelaka, D. D. Solihin, B. Purwantara, & E. Memili. 2022. Implications of sperm heat shock protein 70-2 in bull fertility. *Veterinary World*, 15(6), 1456–1466. <https://doi.org/10.14202/vetworld.2022.1456-1466>.
- Rosyada, Z. N. A., M. F. Ulum, L. I. T. A. Tumbelaka, & B. Purwantara. 2020. Sperm protein markers for holstein bull fertility at national artificial insemination in indonesia. *Vet. World*. 13(5):947-955. <https://doi.org/10.14202/vetworld.2020.947-955>.
- Thanassoulas, A., Safieh-Garabedian, B., Lai, F. A., & Nomikos, E. 2020. The Essential Role of Sperm-Specific PLC-Zeta in Egg Activation and Infertility: An Update. *Frontiers in Cell and Developmental Biology*. DOI: <https://doi.org/10.3389/fcell.2020.00028>.



- Samplaski, M. K., Dimitromanolis, A., Lo, K. C., Grober, E. D., Mullen, B., Garbens, A., & Jarvi, K. A. 2015. The relationship between sperm viability and DNA fragmentation rates. *Reproductive Biology and Endocrinology*, 13(1), 4–9. <https://doi.org/10.1186/s12958-015-0035-y>.
- Sarastina, T. Susilawati, dan G. Ciptadi. 2020. Analisa beberapa parameter motilitas spermatozoa pada berbagai bangsa sapi menggunakan computer assisted semen analysis (CASA). *J. Ternak Tropika*. 6(2): 1-12.
- Sari, L. I. 2016. Analisis aktivitas fosforilasi protein membran spermatozoa sapi madura dengan berat molekul 30 kDa dan 55 kDa sebagai parameter pendukung upaya estimasi kualitas sperma. Thesis. Universitas Negeri Malang.
- Şavkay, O. L., M. E. Yalçın, & V. Tavşanoğlu. 2020. Sperm motility analysis system implemented on a hybrid architecture to produce an intelligent analyzer. *Informatics in Medicine Unlocked*. 19: 1-12.
- Serrano, R., Garcia-Marin, L. J., & Bragado, M. J. 2022. Sperm Phosphoproteome: Unraveling Male Infertility. *Biology*, 11(5), 1–17. <https://doi.org/10.3390/biology11050659>
- Setyawati, R. dan Zubaidah, S. 2021. Optimasi konsentrasi primer dan suhu annealing dalam mendekripsi gen leptin pada sapi peranakan ongole (PO) menggunakan polymerase chain reaction (PCR). *Indonesian Journal of Laboratory*. 4(1),36-40.
- Singh, A. K., P. S. Brar, R. S. Cheema, M. Kaur, and A. K. Bansal. 2014. Characterization of buffalo bull frozen-thawed sperm proteins through SDS PAGE and their correlation with HOST and in vitro acrosome reaction. *Indian Journal of Animal Sciences*. 84 (9): 949–953.
- Siswanto YP, Merdekawati F, Ernawati E, Hardiana AT, dan Kurniawan E, 2019. Optimasi Suhu Annealing dan Konsentrasi Primer Untuk Deteksi Brugia Malai Menggunakan Real-Time PCR. *Jurnal Riset Kesehatan Poltekkes Depkes Bandung*; 11(1): 314-321. doi: 10.34011/juriskesbdg.v11i1.791
- Soler C, A. Valverde, D. Bompard. 2017. New methods of semen analysis by casa. *Sel'skokhozyaistvennaya Biol. Agricultural Biol.* 52: 232–241.
- Steele H, Makri D, Maalouf WE, Reese S, Kölle S. 2020. Bovine Sperm Sexing Alters Sperm Morphokinetics and Subsequent Early Embryonic Development. *Sci Rep.* 10(1): 6255. doi: 10.1038/s41598-020-63077-6.
- Sumardani, N. L. G., Budaarsa, K., Putri, T. I. dan Puger, A. W. 2019. Umur hi volume semen dan motilitas spermatozoa babi landrace di asi buatan Baturiti, Tabanan, Bali. *Jurnal Veteriner*. 20(3), 324-19087/jveteriner.2019.20.3.324
- J, J., Zhang, J., Bao, X., Ding, R., Shi, P., Li, S., Wu, C., Zhao, Sun, Q. Y., Yu, H., & Li, X. 2020. The effects of cryopreservation on structure, enzyme activity, motility, and fertility of bovine,



- ovine, and goat sperm. *Animal Reproduction*, 17(4), 1–10. <https://doi.org/10.1590/1984-3143-AR2020-0219>
- Susan, M. D., dan Rahayu, S. 2013. Profil protein spermatozoa setelah pembekuan. *Jurnal Biotropika*. 1(4): 166-170.
- Susilawati, T. 2011. *Spermatozoatology*. UB Press. Malang. Diakses dari [<https://fapet.ub.ac.id/uploads/2017/10/>]
- Susilawati, T., L. Wahyudi, N. Isnaini, and A. P. A. Yekti. 2015. Reproductive performances of ongole crossbred cattle using artificial insemination sexed semen with different methods. The 6th International Seminar on Tropical Animal Production Integrated Approach in Developing Sustainable Tropical Animal Production.
- Syafitri, K., Auerkari, E. Dan Suhartono, W. 2013. Metode pemeriksaan jenis kelamin melalui analisis histologis dan DNA dalam identifikasi odontologi forensik. *Jurnal PDGI*. 62(1),11-16.
- Tanga, B. M., Qamar, A. Y., Raza, S., Bang, S., Fang, X., Yoon, K., & Cho, J. 2021. Semen evaluation: Methodological advancements in sperm quality-specific fertility assessment - A review. *Animal Bioscience*, 34(8), 1253–1270. <https://doi.org/10.5713/ab.21.0072>.
- Teixeira, D. I. A., Melo, L. M., Gadelha, C. A. de A., Cunha, R. M. S. da, Bloch, C., Rádis-Baptista, G., Cavada, B. S., & Freitas, V. J. de F. 2006. Ion-exchange chromatography used to isolate a spermadhesin-related protein from domestic goat (*Capra hircus*) seminal plasma. *Genetics and Molecular Research* : GMR, 5(1), 79–87.
- Teken, G. E., Yusuf, M., Said, S., & Toleng, A. L. 2020. The quality of sexed sperm separated using bovine serum albumin column and extended using tris aminomethane at different temperatures. *IOP Conference Series: Earth and Environmental Science*, 492(1). <https://doi.org/10.1088/1755-1315/492/1/012067>.
- Valverde, A., Madrigal, M., Caldeira, C., Bompart, D., de Murga, J. N., Arnau, S., & Soler, C. 2019. Effect of frame rate capture frequency on sperm kinematic parameters and subpopulation structure definition in boars, analysed with a CASA-Mot system. *Reproduction in Domestic Animals*, 54(2), 167–175. <https://doi.org/10.1111/rda.13320>.
- Vasan S. S. 2011. Semen analysis and sperm function tests: How much to test? *Indian J Urol*. 27(1): 41-8. doi: 10.4103/0970-1591.78424.



Yazdi, S. A., Dabir, L., Parast, F.Y., Nosrati, R., and Warkiani, M. E. 2023. Sperm were improved by a biomimetic microfluidic selection platform swim-up methods. *Microsyst Nanoengineering*. 9(37): 1-14. [doi.org/10.1038/s41378-023-00501-7](https://doi.org/10.1038/s41378-023-00501-7).

M. N. Ihsan. 2018. Supplementation of a tocopherol on plasma integrity of goat sperm after freezing. *Journal Of Innovation and Technology*. 4(1), 580-584.

- Wen, Y., Richardson, R. T., & O'Rand, M. G. 1999. Processing of the sperm protein Sp17 during the acrosome reaction and characterization as a calmodulin binding protein. *Developmental Biology*, 206(2), 113–122. <https://doi.org/10.1006/dbio.1998.9137>
- Wijayanti, A., T. W. Suprayogi., R. A. Prastiya, T. Hernawati, T. Sardjito, A. L. Saputro, A. Amaliya, dan D. Sulistyowati. 2023. Pengaruh penambahan ekstrak teh hijau (*camellia sinensis*) dalam diluter tris kuning telur terhadap kualitas spermatozoa sapi Bali (*bos sondaicus*) setelah pembekuan. *Jurnal Medik Veteriner*. 6(1): 66-74. DOI: 10.20473/jmv.vol6.iss1.2023.66-74.
- Yadav, S.K., Gangwar, D.K., Singh, J., Tikadar, C.K., Khanna, V.V., Saini, S., Dholpuria, S., Palta, P., Manik, R.S., Singh, M.K., Singla, S.K. 2017. An immunological approach of sperm sexing and different methods for identification of X- and Y-chromosome bearing sperm. *Vet World*. 10(5): 498-504. doi: 10.14202/vetworld.2017.498-504.
- Yata, V. K. 2022. *Sperm Sexing and its Role in Livestock Production* (eBook). Springer Nature Singapore (Verlag). ISBN: 978-981-19-1790-5.
- Yekti, A.P.A., W.O. Bustari, Kuswati, A.N. Huda, A.T. Satria, and T. Susilawati. 2019. Male calf proportion of artificial insemination results by using sexed sperm with double dose on Ongole crosbred cows. IOP Conf. Series: Earth and Environmental Science 387: 012029. doi:10.1088/1755-1315/387/1/012029.
- Yustinadewi, P. D., Yustiantara, P. S. dan Narayan, I. 2018. Teknik perancangan primer untuk sekuen gen MRD-1 varian 1199 pada sampel buffy coat pasien anak dengan lla. *Jurnal Metamorfosa*. 5(1),105-111.
- Zulkarnaim, Baco, S., Yusuf, M., Rahim, L. 2017. Comparison of body dimension of Bali polled and horned cattle in South Sulawesi. *International Journal of Science: Basic and Applied Research*. 36(5): 133-139.
- Zulkarnaim. 2017. Studi Karakteristik Sapi Bali *Polled* sebagai Sapi Lokal Di Sulawesi Selatan. Disertasi. Universitas Hasanuddin. Makassar.

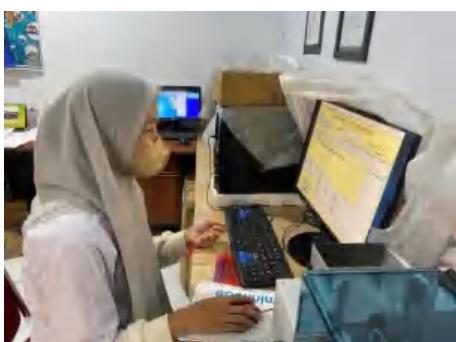


**Lampiran 1. Dokumentasi kegiatan**

Ket: Pembuatan medium Sexing.



Ket: Proses sexing spermatozoa



Ket: Filling sealing



Ket: Thawing straw



Ket: Preparasi evaluasi sampel



Ket: Evaluasi kualitas



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Ket: Ekstraksi protein spermatozoa



Ket: Preparasi evaluasi berat molekul protein



Ket: SDS-Page



Ket: Isolasi DNA



Ket: Kuantifikasi DNA



Ket: Duplex PCR



Ket: Elektroforesis hasil PCR



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[www.balesio.com](http://www.balesio.com)

**CURRICULUM VITAE****A. Data Pribadi**

- |                       |   |
|-----------------------|---|
| 1. Nama               | : Andi Tifal Nurgina                    |
| 2. Tempat, tgl. Lahir | : Bulukumba, 15 Mei 1999                |
| 3. Alamat             | : Branch Village D/3, Moncongloe, Maros |
| 4. Kewarganegaraan    | : Warga Negara Indonesia                |

**B. Riwayat Pendidikan**

1. Tamat SLTA tahun 2017 SMAN 10 Bulukumba
2. Sarjana (S1) tahun 2021 di Universitas Hasanuddin

**C. Pekerjaan dan Riwayat Pekerjaan**

Jenis Pekerjaan : Mahasiswi

**D. Karya ilmiah yang telah dipublikasi**

Quality of polled bali bull spermatozoa results from sexing using the bovine serum albumin (BSA) column method.\_International Journal of Chemical and Biochemical Sciences (IJCBS).

