

DAFTAR PUSTAKA

- Abdelsalam. 2003. Minireview Bioinformatic Tools and Quideline for PCR Primer Design. vol. 2, no. May, pp. 91–95.
- Ahmad dan F. Y. S. Poerba. 2013. Analisis keragaman genetik *Musa balbisiana* Colla berdasarkan marka RAPD dan ISSR. *Berita Biologi*, 12(2), 259-267.
- Alaey, M. R., A. Naderi, A. Verzaei, A. Salami, and Khalighi. 2005. Comparing study between four different methods of genomic DNA extraction from *Cyclamen persicum* Mill. *International Journal of Agriculture and Biology*. 7(6): 882-884.
- Ambarawati, E. 2014. Pengantar Genetika Kuantitatif. Gadjah Mada University Press. Yogyakarta.
- Anggraeni, E dan Triwulaningsih. 2008. Keragaan Bobot Badan dan Morfometrik Tubuh Kerbau Sumbawa Terpilih untuk Penggemukan. Seminar dan Lokakarya Nasional.
- Anggraini, A. D., E. B. Khoendori, H. Pramono, and D. J. Wahyono. 2017. Polymorphism Analysis of the Coagulase Gene in Isolates of Methicillinresistant *Staphylococcus Aureus* with Alui Restriction Site. *Health Science Journal of Indonesia*. 8 (1): 19-24.
- Anjalia, K. M., A. Mandala, B. Gunalan, L. Rubana, E. Anandajothia, D. Thineshsanthara, T.G. Manojkumara, and S. Kandan. 2019. Identification of Six Grouper Species Under the Genus *Epinephelus* (Bloch, 1793) from Indian waters using PCR-RFLP of cytochrome c oxidase I (COI) gene fragment. *Food Control*, 101, 39-44.
- Badan Pusat Statistik. 2024. Populasi Kerbau Menurut Provinsi Sumatera Barat. Diakses Januari 2025.
- Bello, G. L., F. C. L. Morais, J. M. Wolf, M. Gehlen, T. D. S. Soares, M. L. Halon, R. B. Barcellos, and M. L. Rossetti. 2020. Improvement of *Mycobacterium Tuberculosis* Detection in Sputum Using DNA Extracted by Sonication. *Brazilian Journal of Infectious Diseases*, 24(5): 398–404.
- Boccia L. S. D., G. Francesco, M. D. Neglia, V. Blasi, G. Longobardi, Campanile, and B. Gasparri. 2013. Osteopontin Improves Sperm Capacitation and In vitro Fertilization Efficiency in Buffalo (*Bubalus bubalis*). *Theryogenology* 80 (3): 212-217.

- Boesenberg-Smith, K. A., M. M. Pessaraki, and D. M. Wolk. 2012. Assessment of DNA Yield and Purity: An Overlooked Detail of PCR Troubleshooting. *Clinical Microbiology Newsletter*, 34(1): 1–6.
- Burke E. K., M. R. Hyde, and G. Kendall. 2010. Providing a Memory Mechanism to Enhance the Evolutionary Design of Heuristics. *Proceedings of the IEEE World Congress on Computational Intelligence*. Barcelona, Spain. pp 3883-3890.
- Burpo. 2010. A critical review of PCR primer design algorithms and crosshybridization case study. pp. 1–12, 2001.
- Busyra, Y. N. 2020. Data genetik dari empat lokus short tandem repeat (STR): TPOX, D3S1358, D7S820, dan CFS1PO pada Populasi Indonesia. *Journal of Indonesian Forensic and Legal Medicine*. 2(2): 150-155.
- Cancel, A. M., D. A. Chapman, and G. J. Killian. 1997. Osteopontin is the 55-kilodalton fertility-associated protein in Holstein bull seminal plasma. *Biology of Reproduction*, 57(6), 1293–1301.
- Chaiklun, T., R. Hengtrakunsin, and F. D. Rensis. 2012. Reproductive and Dairy Performances of Thai Swamp Buffaloes Under Intensive Farm Management. *Thai J. Vet. Med.*, 42: 81-85.
- Chen, Y., K. Wang, and S. Zhang. 2022. Osteopontin enhances sperm capacitation and in vitro fertilization efficiency in boars. *Scientific Reports*. Published March 30, 2022.
- Dai, S and Y. Long. 2015. Genotyping Analysis Using an RFLP Assay. *Methods Mol Biology*. 1245:91-9.
- Denhardt, D. T and M. Noda. 1998. Osteopontin expression and function: role in bone remodelling. *Journal of Cellular Biochemistry*, 72(1), 92-102
- Denhardt, D. T., M. Noda, A. W. O'Regan, D. Pavlin, and J. S. Berman. 2001. Osteopontin As A Means To Cope With Environmental Insults: Regulation Of Inflammation, Tissue Remodeling, and Cell Survival. *The Journal of Clinical Investigation*, 107(9), 1055-1061.
- Direktorat Jenderal Peternakan dan Kesehatan Hewan. 2012. Pedoman Teknis Pengembangan Perbibitan Kerbau Tahun 2012. Direktorat Jenderal Peternakan Deptan. RI. Jakarta.
- Endrawati, D., E. S. Pribadi, A. Indrawati, dan E. Kusumaningtyas. 2021. Molecular technique for dermatophyte identification isolated from pets in Jakarta and Bogor. *Jurnal Veteriner*. 22(1): 56–67.
- Erikson, W. D., A. David, Way, Chapman., and G. J. Killian. 2007. Detection of Osteopontin On Holstein Bull Spermatozoa, In Cauda Epididymal Fluid and

- Testis Homogenates, and Its Potential Role in Bovine Fertilization. *Reproduction* 133 (5): 909-917.
- Erlich, H. A. 1989. Polymerase Chain Reaction. *Journal of Clinical Immunology* 9: 437-447.
- Faatih, M. 2009. Isolasi dan Digesti DNA Kromosom. *Jurnal Penelitian Sains dan Teknologi* 10(1): 61-67.
- Fairbanks, W., Daniel, and W. R. Anderson. 1999. *Genetics: The Continuity of Life*. Pacific Grove, CA: Wadsworth and Brooks/Cole Publishing Companies.
- Farid, A. 2024. Pengembangan Ternak Kerbau Ditinjau Dari Potensi Lahan Dan Daya Dukung Pakan Di Kabupaten Bima Nusa Tenggara Barat. Tesis. Fakultas Peternakan. Universitas Hasanuddin. Makassar
- Fatchiyah, E., A. Laras, S. Widyarti, dan S. Rahayu. 2011. *Biologi Molekular: Prinsip Dasar Analisis*. Jakarta: Erlangga.
- Fatchiyah. 2011. Pelatihan analisis fingerprinting DNA tanaman dengan metode RAPD. Modul. Laboratorium sentral ilmu hayati Universitas Brawijaya, Malang.
- Forde, N., M.E. Beltman, P. Lonergan, M. Diskin, J.F. Roche and M.A Crowe. 2014. Oestrus cycles in *Bos taurus* cattle. *Anim. Reprod. Sci.* 124. 163-169.
- Fortune, J.M and N. Osheroff. 2000. Topoisomerase II as A Target For anticancer Drugs.
- Gallagher, S. R. 2011. Quantitation of DNA and RNA with Absorption and Fluorescence Spectroscopy. *Current Protocols in Molecular Biology*, 93(1), A-3D
- Gelfand, D. H and T. J. White. 1990. *Thermostable DNA Polymerase for PCR Protocols: A Guide to Methods and Applications*. San Diego: Academic Press Inc.
- Giacopelli, F., R. Marciano, A. Pistorio, P. Catarsi, S. Canini, G. Karsenty, and Ravazzolo. 2004. Polymorphism in the osteopontin promoter affect its transcriptional activity. *Physiol Genomics*. 20: 87-96.
- Gomes, F.P., R. Park, A. G. Viana, C. F. Costa, E. Topper, A. Kaya, E. Memili, J.R. Yates, and A. A. Moura. 2020. The effect of osteopontin on in vitro fertilization and embryo development in cattle. *Animal Reproduction Science*, vol. 223.
- Handoyo, D dan A. Rudiretna. 2001. Prinsip Umum dan Pelaksanaan Polymerase Chain Reaction (PCR). *Unitas*. 9(1): 17-29.

- Hartl, D. L and A. G. Clark. 1988. Principle of Population Genetic Sinaver Associates. Sunderland. MA.
- Hasanain, M., K.G.M. Mahmoud, A. El-Menoufy, A. Sakr, Y. Ahmed, and O. Othman. 2022. Semen Characteristics and Genotyping of Pituitary-Specific Transcription Factor Gene in Buffalo Using PCR-RFLP. *Egyptian Journal of Veterinary Sciences*, 47 (1), 13-26 (2016).
- Hull, K. L and S. Harvey. 2000. Growth Hormone: Roles in Female Reproduction. *J. Endocrinol.* 168:1-23.
- Husni, H. 2022. Performan BCS Anak Kerbau Lumpur (*Swamp Buffalo*) Jantan dan Betina di Pelihara Secara Ekstensif di Tiga Kecamatan Kabupaten Dompu. *Media Ilmiah Teknik Lingkungan (MITL)*, 7(2), 37-47.
- Iannuzzi, L and G. P. DiMeo. 2009. Chromosome Evolution in Bovids: A Review. *Chromosome Research*, 17(1), 77-88.
- Ibrahim, W., J. Laksono, dan T. Karyono. 2022. Identifikasi sifat kualitatif dan sistem pemeliharaan kerbau rawa di kabupaten musi rawas utara. *Jurnal Of Animal Science*. 5(1): 10-15.
- Imawati, 2003. Perubahan Keragaman Genetik Ikan Kerapu Tikus Generasi Pertama pada Stok Hatchery. Thesis. IPB: Bogor. PP. 35.
- Iza, N. 2017. Frekuensi alel, heterozigositas dan migrasi alel pada populasi Etnis Jawa dan Madura Di Malang dan Madura, Jawa Timur, Indonesia. *Jurnal Ilmiah Sains*. 17 (1): 44-50.
- Jakaria, D., R. Duryadi, B. Noor, Tapa, dan, H. Martojo. 2007. Evaluasi Keragaman Genetik Gen Hormon Pertumbuhan (GH) pada Sapi Pesisir Sumatera Barat Menggunakan Penciri PCR-RFLP. *Media Peternakan*. 30(1):1–10.
- Johnson, G.A., F.W. Bazer, L.A. Jaeger, J.E. Garlow, C. Pfarrer, T.E. Spencer and R. C. Burghardt. 2005. Muc-1, integrin, and Osteopontin expression during the implantation cascade in sheep. *Biology of Reproduction* 65:820–828.
- Kamaliah, K. 2017. Perbandingan Metode Ekstraksi Dna Phenol-Chloroform Dan Kit Extraction Pada Sapi Aceh Dan Sapi Madura. *BIOTIK: Jurnal Ilmiah Biologi Teknologi Dan Kependidikan*. 5(1): 60-65.
- Khan, M.S. 2016. Genetic Diversity in Buffalo: A Review." *Journal of Animal Science and Technology*. 58 (1), 1-10.
- Kilmaskossu, A. 2009. Fragmentation of mtDNA, *Goura cristata*, *Goura victoria*, Enzyme Restriction. *HaeII, HpaII, RsaI*. 8(1): 1–5.

- Komalasari, K. 2009. Effect of Blood Volume Comparison and Buffer Lysis and Centrifugation Speed on Quality of DNA Products on Friesian Holstein (FH) Cattle. Thesis. Bogor: IPB.
- Komariah, K., S. Sumantri, H. Nuraini, S. Nurdianti, and S. Mulatsih. 2015. Performans Kerbau Lumpur dan Strategi Pengembangannya pada Daerah dengan Ketinggian Berbeda di Kabupaten Cianjur. *Jurnal Veteriner*, 16(4), 606–615.
- Kumar, R., S. Goyal, and S. P. Singh. 2015. Polymorphism in Osteopontin Gene and Its Effect on Seminal Attributes in Crossbred Bulls. *Indian Journal of Animal Research*, 49(6), 791–795.
- Kusuma, S. A. F. 2010. PCR, Bandung, Fakultas Farmasi, Universitas Padjajaran.
- Kusumawati, D. 2011. Enzim Restriksi. Modul Praktikum Biologi Molekul. UPI. Available from: http://www.enzim_restriksi.pdf.
- Lee, D. E., H. Lee, S. D. Lee, H. S. Han, J. Y. Choe, S. Yun, H. J. Park, J. Park, and J. K. Kim. 2018. Comparison of Different Methods of RNA Preparation From peripheral Blood for Nucleic Acid Amplification Assay. *Indian Journal of Medical Microbiology*, 36(1): 77–82.
- Ludyasari, A. 2014. Pengaruh Suhu Annealing pada Program PCR terhadap Keberhasilan Amplifikasi DNA Udang Jari (*Metapenaeus elegans* De Man, 1907) Laguna Segara Anakan, UIN Maulana Malik Ibrahim, Cilacap, Jawa Tengah.
- Mandal, A. S and Saha. 2015. Genetic Diversity in Indian Buffalo Breeds. *Indian Journal of Animal Sciences*. 85(1), 1-8.
- Martin, R. 1996. Gel Electrophoresis: Nucleid Acids. England: Bros Scientific Publishers Ltd.
- Maslikha, S., M. Amin dan A. Winaya. 2012. Identifikasi variasi genetik kerbau Lokal Tanam Toraja dan Nusa Tenggara Barat berbasis Mikrosatelite: Upaya konservasi plasma nutfah dan penyediaan bibit unggul kerbau di wilayah Indonesia timur. Laporan penelitian hibah bersaing. Fakultas Matematika dan Ilmu Pengetahuan Alam. Universitas Negeri Malang: Malang.
- Montaldo, H. H and C. A. M. Herrera. 1998. Use of Molecular Markers and Major Genes in The Genetic Improvement of Livestock. *EJB Universidad Catolica de Valparaso-Chili*.
- Muladno. 2001. Dasar-Dasar Teknik DNA dan beberapa Aplikasinya. Balai Penelitian dan Pengembangan Zoologi, Pusat Penelitian dan Pengembangan Biologi LIPI. Bogor.

- Muladno. 2002. Seputar Teknologi Rekayasa Genetika. Pustaka Wirausaha Muda dan USESE Fondation. Bogor.
- Muladno. 2010. Teknologi Rekayasa Genetika. Edisi ke-2. Bogor. Penerbit IPB Press.
- Nei, M and S. Kumar. 2000. Molecular Evolution and Physlogenetics. Oxford University Press, New York.
- Nei, M. 1987. Molecular Evolutionary Genetics. New York: Columbia University Press.
- Nopri, H. 2013. Gambaran Umum Kerbau. (Online), (<http://peternakan-domba-kambing-sapi-kerbau.blogspot.com/2010/03/gambaran-umum-kerbau.html>), diakses Januari 2025.
- Nuraida, D. 2012. Analisis Variasi Genetik Varietas Unggul Kapas *Gossypium hirsutum* sebagai Materi Penyusun Buku Pengayaan Biologi. Disertasi, Program Studi Pendidikan Biologi, Program Pascasarjana Universitas Negeri Malang.
- Panggabean, T. N. 2016. Analisis tingkat optimasi algoritma genetika dalam hukum ketetapan hardy-weinberg pada bin packing problem. CESS Journal of Computer Engineering, System and Science. 1(2): 12–18.
- Paul, B and G. Montoya. 2020. CRISPR-Cas12a: Functional Overview and Applications. Biomedical Journal, 43(1), 8-17.
- Pelt-Verkuil., E. van, A. Van, Belkum, and J. P. Hays. 2008. Principles and Technical Aspects of PCR Amplification. Netherlands (NL): Springer.
- Perera, B. M. A. O. 2011. Reproductive cycles of buffalo. Animal Reproduction Science, 124(3-4), 194-199.
- Piastuti, D., S. N. Kamaliyah, dan H. E. Sulistyo. 2021. Peluang Seleksi Pakan Ternak melalui Keragaman Genetik dan Heritabilitas Karakter Kuantitatif Produksi Hijauan Komak (*Lablab purpureus*). Jurnal Nutrisi Ternak Tropis, 4(2): 117–123.
- Putri, S., C. Yowani and I. N. Wirajana. 2017. Optimasi Digesti Enzim Restriksi Sac II pada Isolat tuberculosis H37Rv untuk Deteksi Mutasi Promoter inhA pada Kasus MDR-TB dengan metode-RFLP. Metamorfosa: Journal of Biological Sciences 4(1): 87-93.
- Riyanto. 2010. Identifikasi Variasi Genetik Kerbau Lokal Jawa Timur (*Bubalus Bubalis*) dari Wilayah yang Berbeda berbasis Mikrosatelit sebagai Pengembangan Bahan Ajar Mata Kuliah Genetika. Tesis tidak diterbitkan.

- Salehi, A., K. Nasiri, M. Aminafshar, M. B. Sayaadnejad, and R. Sobhani. 2015. The association of bovine osteopontin (SPP1) gene with milk production traits in Iranian Holstein Bulls. *Iran J Biotechnol.* 13:43-48.
- Sambrook, J and D.W. Russell. 2001. *Molecular cloning: A Laboratory Manual* 3rd Edition. (Coldspring-Harbour Laboratory Press, UK).
- Sijapati, J., P. Rana, and S. Shrestha. 2008. Optimization of RAPD-PCR Conditions for the Study of Genetic Diversity in Nepalese Isolates of *Bacillus thuringiensis* Berliner. *Nepal Journal of Science and Technology.* 9: 91-97.
- Singh, J., S. Birbian, Sinha, and A. Gosmawi. 2014. A critical review on PCR, its types and applications. *International Journal of Advanced Research in Biological Science*, 1(7), 65-80.
- Singh, B. N. 2022. Random Genetic Drift: A Non-directional Force of Evolution. *Journal of Scientific Research, Institute of Science, Banaras Hindu University, Varanasi, India.*
- Siti, H., G. Heli, N. Gun, Desy, and S. Noer. 2013. Variasi Urutan Nukleotida Daerah D-Loop DNA Mitokondria Manusia pada Dua Populasi Asli Indonesia Tenggara. P. 440-446.
- Sodek, J., B. Ganss and M. D. McKee. 2000. Osteopontin. *Crit. Rev. Oral Biol. Med.* 11:279–303.
- Stansfield, I., K. M. Jones, P. Herbert, A. Lewendon, W. V. Shaw, dan M. F. Tuite. 2003. Missense translation errors in *Saccharomyces cerevisiae*. *Journal of Molecular Biology.* 282: 13-24.
- Sudjadi. 2008. *Bioteknologi Kesehatan*, Yogyakarta: Kanisius.
- Sulandri, S dan M. S. A. Zein. 2003. *Panduan Praktis Laboratorium DNA*. Bidang Zoologi, Pusat Penelitian Biologi. Lembaga Ilmu Pengetahuan Indonesia.
- Sulastri, S., I. M. D. Hamdani, and A. Dakhlan. 2019. *Buku Ajar Dasar Pemuliaan Ternak*.
- Tantia, M. S., R. K. Vijh, B. P. Mishra, B. Bharani, S. T. Kumar, and M. Sodhi. 2008. DGAT1 and ABCG2 Polymorphism in Indian Cattle (*Bos indicus*) and Buffalo (*Bubalus bubalis*) breeds. *BMC Veterinary Research* 2, 32.
- Tarwaningsih, H. 2011. Mitochondrial DNA innatural population: An improved routine for screening of genetic variation based on sensitive silver staining. *Electrophoresis.* 7:226 – 229.
- Taylor, S., M. Wakem, G. Dijkman, M. Alsarraj, and M. Nguyen. 2010. A practical Approach to RT-qPCR—Publishing Data that Conform to the MIQE Guidelines. *Methods*, 50(4), S1-S5.

- Theodore, G. 2000. Mitochondrial DNA and the Peopling of the New World Genetic Variations Among Native Americans Provide Further Clues to Who First Populated the Americas and When they Arrived. American Scientist Online (The Magazine of Sigma).
- Triasih, D. R. R., Y. Dewi, Erwanto, dan N. A. Fitrianto. 2020. Perbandingan Metode Isolasi pada Deteksi Kulit Sapi, Kerbau, Kambing, dan Babi sebagai Bahan Baku Rambak Kulit. Jurnal Triton. 11(1): 37-44.
- Viljoen G. J., L. H. Nel, and J. R. Crowther. 2005. Molecular Diagnosis PCR Handbook. Netherlands (NL): Springer.
- Vogel, F and A.G. Motulsky. 1997. Human Genetics: Problems and Approaches. Springer: Berlin.
- White, F. J., R. C. Burghardt and G. A Johnson. 2005. Expression of integrins and extracellular matrix proteins during uterine receptivity in mammals. Reproduction, 130(6), 777–788.
- Wilson, S. K. (1997). Inhibition and facilitation of nucleic acid amplification. Applied and Environmental Microbiology, 63(10), 3741–3751.
- Yuniarsih, P., D. Jakaria, dan Muladno. 2011. Ekspolarasi Gen Growth Hormone Exon 3 pada Kambing Peranakan Etawah (PE), saanen dan PESA melalui Teknik PCR-SSCP. IPB. Bogor.
- Yusnizar, Y., M. Ilham, M. Rizal, Sumantri, dan Cece. 2015. Kerbau, Ternak Potensial yang Terlupakan. (1st ed., Vol. 1). IPB Press.
- Yuwono, T. 2006. Teori dan Aplikasi Polymerase Chain Reaction. Andi Offset. Yogyakarta. 237 p.
- Zein, M. S. A dan D. M. Prawiradilaga. 2013. DNA Barcode Fauna Indonesia. Jakarta: Kencana Prenadamedia Group.