UNIVERSITAS
GADJAH MADA
Penambahan Selenium pada Medium Kapasitas In Vitro terhadap Parameter Kinematika Spermatozoa Kambing
Arina Dinar Nurfadilla Sastranegara, Prof. Ir. Diah Tri Widayati, MP., Ph.D., IPU., ASEAN Eng.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Aitken, R., M. Baker, and B. Nixon. 2015. Are sperm capacitation and apoptosis the opposite ends of a continuum driven by oxidative stress? Asian J. Androl. 17:633. https://doi.org/10.4103/1008-682X.153850.

Aitken, R.J. 2017. Reactive oxygen species as mediators of sperm capacitation and pathological damage. Mol. Reprod. Dev. 84:1039–1052. https://doi.org/10.1002/mrd.22871.

Aitken, R.J., and J.R. Drevet. 2020. The importance of oxidative stress in determining the functionality of mammalian spermatozoa: a two-edged sword. Antioxidants 9:111. https://doi.org/10.3390/antiox9020111.

Aliyah, S.N., H. Santoso, and H. Zayadi. 2022. Analisis normalitas dan abnormalitas spermatozoa segar sapi limousin (Bos taurus) dan sapi bali (Bos sondaicus) aebelum proses pembekuan di balai besar inseminasi buatan singosari malang. SCISCITATIO 3:38–46. https://doi.org/10.21460/sciscitatio.2022.31.85.

Baharun, A., I. Arifiantini, N.W.K. Karja, and S. Said. 2021. Seminal plasma protein profile based on molecular weight and their correlation with semen quality of Simmental bull. J. Indones. Trop. Anim. Agric. 46:20–28. https://doi.org/10.14710/jitaa.46.1.20-28.

Bintara, S., I. Ismaya, D.T. Widayati, R.N. Aji, and W. Asmarawati. 2022. The effect of vitamin e antioxidant addition in goat milk diluent on the quality of thin-tailed sheep semen. IOP Conf. Ser. Earth Environ. Sci. 1001:012012. https://doi.org/10.1088/1755-1315/1001/1/012012.

Bintara, S., D.T. Widayati, and P.I. Sitaresmi. 2025. Curcuma xanthorrhiza Diluent's Effect on the Freezing and Thawing of Thin-Tailed Ram Sperm. Pak. J. Zool. 57. https://doi.org/10.17582/journal.pjz/20230228020254.

Breitbart, H., and E. Grinshtein. 2023. Mechanisms that protect mammalian sperm from the spontaneous acrosome reaction. Int. J. Mol. Sci. 24:17005. https://doi.org/10.3390/ijms242317005.

Brito, L.F.C. 2025. Sperm motility evaluation in stallion fresh, cooled and frozen semen using a portable computer-assisted sperm analysis system. Reprod. Domest. Anim. 60:e70052. https://doi.org/10.1111/rda.70052.

Cardenas-Padilla, A.J., F. Jimenez-Trejo, M. Cerbon, and A. Medrano. 2024. The Role of Melatonin on Caprine (Capra hircus) Sperm Freezability: A Review. Antioxidants 13:1466. https://doi.org/10.3390/antiox13121466.

Chen, Z., Y. Lu, X. Dun, X. Wang, and H. Wang. 2023. Research progress of selenium-enriched foods. Nutrients 15:4189. https://doi.org/10.3390/nu15194189.

Cummins, J. 2009. Sperm motility and energetics. Pages 185–206 in Sperm Biology. Elsevier.

Denk, B., M. Kırıkkulak, Ş. Güngör, M.F. Gülhan, M.E. İnanç, F. Avdatek, D. Yeni, and U. Taşdemir. 2026. Enhancing post-thaw sperm quality in rams: quinic acid as a natural antioxidant. Front. Vet. Sci. 12:1744161. https://doi.org/10.3389/fvets.2025.1744161.

Dolník, M., and D. Mudroňová. 2021. Effects of Selenium on Bull's Sperm Oxidative Stress and Viability Under *in Vitro* Conditions. Folia Vet. 65:19–28. https://doi.org/10.2478/fv-2021-0003.

Dorostkar, K., A.-S. Alavi-Shoushtari, and A. Mokarizadeh. 2012. Effects of in vitro selenium addition to the semen extender on the spermatozoa

UNIVERSITAS
GADJAH MADA
Penambahan Selenium pada Medium Kapasitas In Vitro terhadap Parameter Kinematika Spermatozoa Kambing
Arina Dinar Nurfadilla Sastranegara, Prof. Ir. Diah Tri Widayati, MP., Ph.D., IPU., ASEAN Eng.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

characteristics before and after freezing in water buffaloes (Bubalus bubalis). Vet. Res. Forum 3:263–268.

Dutta, S., A. Majzoub, and A. Agarwal. 2019. Oxidative stress and sperm function: A systematic review on evaluation and management. Arab J. Urol. 17:87–97. https://doi.org/10.1080/2090598X.2019.1599624.

Eini, F., M.A. Kutenaei, M.H. Shirzeyli, Z.S. Dastjerdi, M. Omidi, and M.G. Novin. 2021. Normal seminal plasma could preserve human spermatozoa against cryopreservation damages in Oligozoospermic patients. BMC Mol. Cell Biol. 22:50. https://doi.org/10.1186/s12860-021-00390-6.

Erlindra, C.P., D.F.F. Diatmono, F.G. Padmawati, A.D.N. Sastranegara, P.I. Sitaresmi, S. Bintara, and D.T. Widayati. 2026. Regulation of reactive oxygen species by sodium selenite in AndroMed® extender enhances post-thaw Saanen Buck semen quality. Caraka Tani J. Sustain. Agric. 41:32–45. https://doi.org/https://doi.org/10.20961/carakatani.v41i1.108422.

Fleming, S.D., and L.K. Thomson. 2025. The Oxidative Stress of Human Sperm Cryopreservation. Antioxidants 14:402. https://doi.org/10.3390/antiox14040402.

Garner, D.L., and E.S.E. Hafez. 2000. Spermatozoa and Seminal Plasma. Pages 96–109 in Reproduction in Farm Animals. 1st ed. B. Hafez and E.S.E. Hafez, ed. Wiley.

Gemeda, A.E., M. Singh, R. Katiyar, A. Kumar, M. Pande, M.K. Patra, M. Karikalan, N. Srivastava, V. Chandra, S.K. Singh, and S.K. Ghosh. 2026. Mitochondrial derived peptide humanin improved semen quality, semen freezability, antioxidant status and in-vitro fertility in crossbred bull. Sci. Rep. 16:5380. https://doi.org/10.1038/s41598-025-30931-4.

Gualtieri, R., G. Kalthur, V. Barbato, S. Longobardi, F. Di Rella, S.K. Adiga, and R. Talevi. 2021. Sperm Oxidative Stress during In Vitro Manipulation and Its Effects on Sperm Function and Embryo Development. Antioxidants 10:1025. https://doi.org/10.3390/antiox10071025.

Hackerova, L., A. Pilsova, Z. Pilsova, N. Zelenkova, P. Tymich Hegrova, B. Klusackova, E. Chmelikova, M. Sedmikova, O. Simonik, and P. Postlerova. 2025. Boar sperm motility assessment using computer-assisted sperm analysis: current practices, limitations, and methodological challenges. Animals 15:305. https://doi.org/10.3390/ani15030305.

Hajrah, H., H. Hafsan, Z. Zulkarnain, and K. Makmur. 2022. Pemanfaatan bioteknologi dalam bidang peternakan untuk peningkatan kualitas hewan ternak di sulawesi selatan. Teknosains Media Inf. Sains Dan Teknol. 16:261–266. https://doi.org/10.24252/teknosains.v16i2.28754.

Hanifi, H., S. Umar, R. Handarini, and T. Maulana. 2025. Kinematic characteristics of spermatozoa in different goat breeds using computer assisted semen analysis (CASA). J. Agripet 25:209–213. https://doi.org/10.17969/agripet.v25i2.47621.

Hariono, M.F. Ulum, E.M. Kaiin, and N.W.K. Karja. 2022. Characteristics of sheep spermatozoa incubated in fertilization medium with different time and concentration. Acta Vet Indones. 10:201–210.

Hendri, Jaswandi, R. Indriastuti, and Ananda. 2024. Sperm kinematics of pesisir bull thawed at different temperatures and times. Bull. Anim. Sci. 28:233–241.

Ismaya, I. 2015. The detailed motility and velocity characteristics of rams spermatozoa as assessed by computer-aided semen analysis.

UNIVERSITAS
GADJAH MADA
Penambahan Selenium pada Medium Kapasitas In Vitro terhadap Parameter Kinematika Spermatozoa Kambing
Arina Dinar Nurfadilla Sastranegara, Prof. Ir. Diah Tri Widayati, MP., Ph.D., IPU., ASEAN Eng.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Kalehoei, E., M. Azadbakht, N. Karimi, F. Nowrouzi, N. Jalilian, and F. Keshavarzi. 2023. Effects of in vitro repaglinide supplementation on improving sperm motility parameters, viability, and dna integrity in normozoospermic and asthenozoospermic men. JBRA Assist. Reprod. https://doi.org/10.5935/1518-0557.20230038.

Kaya, C., C. Can, B. Esin, E. Dünder, M. Çevik, and M. Akar. 2026. Effects of selenium nanoparticles and sodium selenite supplementation on cryopreserved ram sperm quality, oxidative status, and prdx5 gene expression. Animals 16:457. https://doi.org/10.3390/ani16030457.

Khalil, W.A., M.A. El-Harairy, A.E.B. Zeidan, and M.A.E. Hassan. 2019. Impact of selenium nano-particles in semen extender on bull sperm quality after cryopreservation. Theriogenology 126:121–127. https://doi.org/10.1016/j.theriogenology.2018.12.017.

Kowalczyk, A. 2022. The role of the natural antioxidant mechanism in sperm cells. Reprod. Sci. 29:1387–1394. https://doi.org/10.1007/s43032-021-00795-w.

Lekola, K.P.M., M.S. Ngcobo, and K.C. Lehloenya. 2024. Selenium efficiency in protecting sperm quality and testicular parameters of South African indigenous Zulu rams exposed to heat stress. Trop. Anim. Health Prod. 56:349. https://doi.org/10.1007/s11250-024-04207-4.

Li, C., Y. Ni, L. Yao, J. Fang, N. Jiang, J. Chen, W. Lin, H. Ni, and H. Zheng. 2024. The correlation between sperm percentage with a small acrosome and unexplained in vitro fertilization failure. BMC Pregnancy Childbirth 24:58. https://doi.org/10.1186/s12884-023-06205-0.

Lukusa, K., and J. Kabuba. 2021. Oral supplementation of selenium improves post-thaw sperm quality in Saanen bucks. Asian Pac. J. Reprod. 10:187–194. https://doi.org/10.4103/2305-0500.321126.

Mehdinejadiani, S., N. Azad, Z. Dehghan, Z. Khosravizadeh, F. Saberi, D. Rezaee, T. Pilehchi, N. Goudarzi, E. Salahi, and K. Mehdinejadiani. 2025. Role of seminal exosomes in reproduction. J. Cell. Physiol. 240:e70106. https://doi.org/10.1002/jcp.70106.

Mesalam, A., I. Khan, K.-L. Lee, S.-H. Song, M.M.R. Chowdhury, Z. Uddin, K.H. Park, and I.-K. Kong. 2017. 2-Methoxystypandrone improves in vitro-produced bovine embryo quality through inhibition of IKBKB. Theriogenology 99:10–20. https://doi.org/10.1016/j.theriogenology.2017.05.012.

Mortimer, D., and S.T. Mortimer. 2013. Computer-Aided Sperm Analysis (CASA) of Sperm Motility and Hyperactivation. 77–87. Humana Press.

Mostek, A., A. Janta, A. Majewska, and A. Ciereszko. 2021. Bull Sperm Capacitation Is Accompanied by Redox Modifications of Proteins. Int. J. Mol. Sci. 22:7903. https://doi.org/10.3390/ijms22157903.

Mulpur, P., A. Kurdekar, R. Podila, A.M. Rao, and V. Kamisetti. 2016. SPCE enabled acid-fast based onsite forensic sensors for the detection of sperm cells/semen. Foresic Res. Criminol. Int. J. 3. https://doi.org/10.15406/frcij.2016.03.00082.

Murdiyanti, R.A., N. Nurdayati, and D. Pranatasari. 2024. Pengaruh Pemberian Selenium dan Vitamin E Terhadap Kualitas Spermatozoa Pada Kambing Pejantan Jawarandu (Capra aegagrus hircus). TERNAK Trop. J. Trop. Anim. Prod. 25:14–21. https://doi.org/10.21776/ub.jtapro.2024.025.01.2.

Nofa, Y., N.W.K. Karja, and R.I. Arifiantini. 2017. Acrosome status and quality of post-thawed sperm from several cattle breed of two artificial insemination

UNIVERSITAS
GADJAH MADA
Penambahan Selenium pada Medium Kapasitas In Vitro terhadap Parameter Kinematika Spermatozoa Kambing
Arina Dinar Nurfadilla Sastranegara, Prof. Ir. Diah Tri Widayati, MP., Ph.D., IPU., ASEAN Eng.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

centre. Acta Vet. Indones. 5:81–88. https://doi.org/https://doi.org/10.29244/avi.5.2.81-88.

O'Flaherty, C. 2025. Redox signaling regulation in human spermatozoa: a primary role of peroxiredoxins. Asian J. Androl. 27:556–563. https://doi.org/10.4103/aja2024126.

O'Flaherty, C., and E. Scarlata. 2022. Oxidative stress and reproductive function: the protection of mammalian spermatozoa against oxidative stress. Reproduction 164:F67–F78. https://doi.org/10.1530/REP-22-0200.

Pande, M., S.K. Ghosh, S. Tyagi, R. Katiyar, S. Kumar, N. Srivastava, A.S. Sirohi, Sarika, N. Chand, S.K. Dhara, S.K. Bhure, and S. Mahajan. 2024. Novel Antioxidant Humanin Analogue Restores Bull Semen Cryosurvivability. Andrologia 2024:5582359. https://doi.org/10.1155/2024/5582359.

Patané, G.T., R.J. Moreira, A. Russo, M.L. Pereira, P.F. Oliveira, D. Barreca, and M.G. Alves. 2026. Lifestyle implications of the paradox and management of oxidative stress in sperm. J. Physiol. 604:1028–1044. https://doi.org/10.1113/JP289694.

Peris-Frau, P., A. Sanchez-Rodriguez, R. Velázquez, A. Toledano-Díaz, C. Castaño, E.R.S. Roldan, and J. Santiago-Moreno. 2025. Capacitation of ram spermatozoa promotes changes in energy metabolism and aquaporin 3 and is affected by individual testosterone variations. Andrology 13:921–933. https://doi.org/10.1111/andr.13756.

Prihantoko, K.D., F. Yuliastuti, H. Haniarti, A. Kusumawati, D.T. Widayati, and A. Budiyanto. 2020. The Acrosome Integrity Examination of Post-thawed Spermatozoa of Several Ongole Grade Bull in Indonesia Using Giemsa Staining Method. IOP Conf. Ser. Earth Environ. Sci. 478:012042. https://doi.org/10.1088/1755-1315/478/1/012042.

Putri, F., N.W.K. Karja, M.A. Setiadi, E.M. Kaiin, and R.A. Chaniago. 2025. Effects of melatonin supplementation in dilution media on sperm quality parameters in sheep post-equilibration. Wahana Peternak. 9:458–465. https://doi.org/10.37090/jwputb.v9i2.2687.

Qazi, I.H., C. Angel, H. Yang, E. Zoidis, B. Pan, Z. Wu, Z. Ming, C.-J. Zeng, Q. Meng, H. Han, and G. Zhou. 2019. Role of Selenium and Selenoproteins in Male Reproductive Function: A Review of Past and Present Evidences. Antioxidants 8:268. https://doi.org/10.3390/antiox8080268.

Rahman, M.M., Md.M. Rahman, N.S. Juyena, and M.M.U. Bhuiyan. 2020. Optimization of in vitro fertilization technique for oocytes of indigenous zebu cows. J. Anim. Reprod. Biotechnol. 35:142–148. https://doi.org/10.12750/JARB.35.2.142.

Ramadhan, R., Ananda, and Hendri. 2025. Kinematics of spermatozoa in fresh and frozen semen of pesisir cattle. J. Bioteknol. Biosains Indones. JBBI 12:157–162. https://doi.org/10.55981/jbbi.2025.11410.

Ratnawati, D., and M. Luthfi. 2020. Comparative study of sperms motility analysis with CASA by using leja and microscope slide. J. Ilmu-Ilmu Peternak. 30:115–122. https://doi.org/10.21776/ub.jiip.2020.030.02.03.

Rotar, I.C., R. Buda, A. Marcu, P. Naghi, L. Sachelarie, D.C. Buzlea, A. Huniadi, and M.I. Sandor. 2026. sperm DNA fragmentation is associated with impaired directional motility and kinematic efficiency: a CASA-based study. Medicina (Mex.) 62:376. https://doi.org/10.3390/medicina62020376.

Sahoo, B., B. Mishra, R. Bhaskar, Y.N.V. Vikas, A. Umesh, P.K. Guttula, and M.K. Gupta. 2023. Analyzing the effect of heparin on in vitro capacitation and

UNIVERSITAS
GADJAH MADA
Penambahan Selenium pada Medium Kapasitas In Vitro terhadap Parameter Kinematika Spermatozoa Kambing
Arina Dinar Nurfadilla Sastranegara, Prof. Ir. Diah Tri Widayati, MP., Ph.D., IPU., ASEAN Eng.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

spermatozoal RNA population in goats. Int. J. Biol. Macromol. 241:124502. https://doi.org/10.1016/j.ijbiomac.2023.124502.

Salimi, T., H. Hajarian, H. Karamishabankareh, and L. Soltani. 2024. Effects of sodium selenite, cysteamine, bacterially synthesized Se-NPs, and cysteamine loaded on Se-NPs on ram sperm cryopreservation. Sci. Rep. 14:852. https://doi.org/10.1038/s41598-023-50221-1.

Sapanidou, V., M. Tsantarliotou, S. Lavrentiadou, E. Tzekaki, I. Efraimidis, T. Lialiaris, and B. Asimakopoulos. 2023. The Beneficial Effects of Pterostilbene on Post-Thawed Bovine Spermatozoa. Animals 13:2713. https://doi.org/10.3390/ani13172713.

Siddique, R., S. Atreja, N. Ali, and K. Singh. 2021. Physiological Concentration of Spermine-NONOate Induces Acrosome Reaction in Bubalus bubalis Spermatozoa. Int. J. Livest. Res. 1. https://doi.org/10.5455/ijlr.20200924065003.

Siena, S.M.S., D.F.F. Diatmono, F.G. Padmawati, G.R. Putri, A.D.N. Sastranegara, P.I. Sitaresmi, Y.Y. Suranindyah, J. da C. Freitas, and D.T. Widayati. 2026. Dose-response of sodium selenite supplementation in andromed® chilled extender on saanen buck spermatozoa integrity across age groups. Int. J. Agric. Biosci. 15:1204–1212. https://doi.org/https://doi.org/10.47278/journal.ijab/2026.032.

Solís, J.M., F. Sevilla, M.A. Silvestre, I. Araya-Zúñiga, E.R.S. Roldan, A. Saborío-Montero, and A. Valverde. 2024. Effect of Thawing Procedure and Thermo-Resistance Test on Sperm Motility and Kinematics Patterns in Two Bovine Breeds. Animals 14:2768. https://doi.org/10.3390/ani14192768.

Stival, C., L.D.C. Puga Molina, B. Paudel, M.G. Buffone, P.E. Visconti, and D. Krapf. 2016. Sperm Capacitation and Acrosome Reaction in Mammalian Sperm. Pages 93–106 in Sperm Acrosome Biogenesis and Function During Fertilization. M.G. Buffone, ed. Springer International Publishing.

Sun, W., S. Jiang, J. Su, J. Zhang, X. Bao, R. Ding, P. Shi, S. Li, C. Wu, G. Zhao, G. Cao, Q.-Y. Sun, H. Yu, and X. Li. 2020. The effects of cryopreservation on the acrosome structure, enzyme activity, motility, and fertility of bovine, ovine, and goat sperm. Anim. Reprod. 17:e20200219. https://doi.org/10.1590/1984-3143-ar2020-0219.

Syafi'i, T.M., and B. Rosadi. 2022. The ressitance of acrosome cap and plasma membrane of bali cattle spermotozoas exposed to room temperature. JPTT 3:41. https://doi.org/10.24198/jptt.v3i2.42471.

Tak, L.-J., H.-Y. Kim, W.-K. Ham, G. Agrahari, Y. Seo, J.W. Yang, E.-J. An, C.H. Bang, M.J. Lee, H.-S. Kim, and T.-Y. Kim. 2021. Superoxide dismutase 3-transduced mesenchymal stem cells preserve epithelial tight junction barrier in murine colitis and attenuate inflammatory damage in epithelial organoids. Int. J. Mol. Sci. 22:6431. https://doi.org/10.3390/ijms22126431.

Takei, G.L. 2024. Molecular mechanisms of mammalian sperm capacitation, and its regulation by sodium-dependent secondary active transporters. Reprod. Med. Biol. 23:e12614. https://doi.org/10.1002/rmb2.12614.

Tvrdá, E., A. Kováčik, E. Tušimová, D. Paál, A. Mackovich, J. Alimov, and N. Lukáč. 2016. Antioxidant efficiency of lycopene on oxidative stress - induced damage in bovine spermatozoa. J. Anim. Sci. Biotechnol. 7:50. https://doi.org/10.1186/s40104-016-0113-9.

UNIVERSITAS
GADJAH MADA
Penambahan Selenium pada Medium Kapasitas In Vitro terhadap Parameter Kinematika Spermatozoa Kambing
Arina Dinar Nurfadilla Sastranegara, Prof. Ir. Diah Tri Widayati, MP., Ph.D., IPU., ASEAN Eng.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Valverde-Abarca, A., O. Castro-Morales, and M. Mdrigal-Valverde. 2019. Sperm kinematics and morphometric subpopulations analysis with CASA systems: a review. Rev. Biol. Trop. 67. https://doi.org/10.15517/rbt.v67i6.35151.

Van De Hoek, M., J.P. Rickard, and S.P. De Graaf. 2022. Motility assessment of ram spermatozoa. Biology 11:1715. https://doi.org/10.3390/biology11121715.

Wang, Y., X. Fu, and H. Li. 2025. Mechanisms of oxidative stress-induced sperm dysfunction. Front. Endocrinol. 16:1520835. https://doi.org/10.3389/fendo.2025.1520835.

Widayati, D.T. 2023. Reproduksi Ternak. 1st ed. Lintang Pustaka Utama, Yogyakarta.

Widayati, D.T., and M. Pangestu. 2020. Effect of follicle-stimulating hormone on Bligon goat oocyte maturation and embryonic development post in vitro fertilization. Vet. World 13:2443–2446. https://doi.org/https://doi.org/10.14202/vetworld.2020.2443-2446.

Widayati, D.T., and Wahyuningsih. 2024. Panduan Praktikum Fertilisasi In Vitro. Fakultas Peternakan UGM, Yogyakarta.

Yánez-Ortiz, I., J. Catalán, J.E. Rodríguez-Gil, J. Miró, and M. Yeste. 2022. Advances in sperm cryopreservation in farm animals: Cattle, horse, pig and sheep. Anim. Reprod. Sci. 246:106904. https://doi.org/10.1016/j.anireprosci.2021.106904.

Yao, S., Q. Xu, Y. Lv, Y. Zhang, H. Li, J. Zhang, Z. Yao, Y. An, X. Chen, and Y. Jin. 2025. De-SUMO1ylated hexokinase 1 selectively degraded by ubiquitin-proteasome pathway promotes boar sperm capacitation in vitro. Anim. Reprod. Sci. 274:107794. https://doi.org/10.1016/j.anireprosci.2025.107794.

Yekti, A.P.A., R.E.R. Setiawan, A. Rachmawati, and T. Susilawati. 2023. Kualitas Semen Beku Sapi Limousin setelah Thawing Menggunakan Air Dingin dengan Lama Waktu yang Berbeda. J. Agripet 23:25–32. https://doi.org/10.17969/agripet.v23i1.23331.

Yu, L., Y. Wang, J. He, Y. Feng, Y. Wu, Z. Huang, and F. Ma. 2026. Correlation of sperm acrosome integrity rate with semen parameters and in vitro fertilization outcomes. J. Mens Health 22:38. https://doi.org/10.22514/jomh.2026.016.

Yuniar, R.M., A. Kusumawati, and E.M.N. Setyawan. 2024. Efek Penambahan Antioksidan Selenium, Kurkumin dan Kombinasinya Terhadap Motilitas, Recovery Rate dan Viabilitas Spermatozoa pada Kriopreservasi Semen Sapi Peranakan Ongole. J. Sain Vet. 42:389. https://doi.org/10.22146/jsv.85255.

Zahid, R. ed. . 2026. Comparative analysis of semen characteristics and seminal plasma metabolites in indonesian-bred and imported simmentals. Int. J. Vet. Sci. https://doi.org/10.47278/journal.ijvs/2026.077.

Zhang, B., H. Liu, F. Chang, S. Sang, J. Li, W. Li, C. Ruan, and Y. Gu. 2026. The impact of different equilibration methods on the cryopreservation effectiveness of boar semen. Vet. Med. Sci. 12:e70888. https://doi.org/10.1002/vms3.70888.

Zhou, Y., S. Yu, and W. Zhang. 2024. The molecular basis of multiple morphological abnormalities of sperm flagella and Its impact on clinical practice. Genes 15:1315. https://doi.org/10.3390/genes15101315.

UNIVERSITAS
GADJAH MADA
Penambahan Selenium pada Medium Kapasitas In Vitro terhadap Parameter Kinematika Spermatozoa Kambing
Arina Dinar Nurfadilla Sastranegara, Prof. Ir. Diah Tri Widayati, MP., Ph.D., IPU., ASEAN Eng.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Zhu, C., Q. Liu, Y. Deng, L. Zheng, Y. Wang, L. Zhang, X. Bu, M. Qi, F. Yang, and W. Dong. 2023. Selenium nanoparticles improve fish sperm quality by enhancing glucose uptake capacity via AMPK activation. Theriogenology 208:88–101. https://doi.org/10.1016/j.theriogenology.2023.06.009.