

DAFTAR PUSTAKA

- Abbasi, M., Alizadeh, R., Abolhassani, F., Amidi, F., Hassanzadeh, G., Ejtemaei Mehr, S., & Dehpour, A. R. (2011). Aminoguanidine improves epididymal sperm parameters in varicocelectomized rats. *Urologia internationalis*, 86(3), 302-306. <https://doi.org/10.1159/000322154>
- Adamkovicova, M., Toman, R., Martiniakova, M., Omelka, R., Babosova, R., Krajcovicova, V., & Massanyi, P. (2016). Sperm motility and morphology changes in rats exposed to cadmium and diazinon. *Reproductive biology and endocrinology*, 14(42), 1-7. [10.1186/s12958-016-0177-6](https://doi.org/10.1186/s12958-016-0177-6)
- Afiati, F., Yulnawati, M. R., & Arifiantini, R. I. (2015). Abnormalitas spermatozoa domba dengan frekuensi penampungan berbeda. *Pros Sem Nas Masy Biodiv Indon*, 1(4), 930-934. DOI: [10.13057/psnmbi/m010449](https://doi.org/10.13057/psnmbi/m010449)
- Ahmadi, S., Bashiri, R., Ghadiri-Anari, A., & Nadjarzadeh, A. (2016). Antioxidant supplements and semen parameters: An evidence based review. *International journal of reproductive biomedicine*, 14(12), 729.
- Aprilia, N. H. L. A., Rahayu, S., & Marhendira, A. P. W. (2024). Effect of Curcumin (Curcuma xanthorrhiza) and Red Ginger (Zingiber officinale var. rubrum) Ethanol Extract on Improvement of Mice Sperm Quality Exposed by Monosodium Glutamate. *The Journal of Experimental Life Science*, 14(1), 18-24.
- Arshadi, A., Gharaei, A., & Mirdar Harijani, J. (2020). Effect of dietary vitamin E on reproductive performance and vitellogenin gene expression in broodstock of *Litopenaeus vannamei*. *Iranian Journal of Fisheries Sciences*, 19(5), 2475-2492. <https://doi.org/10.22092/ijfs.2020.122455>
- Babaei, A., Kheradmand, N., Baazm, M., Nejati, N., & Khalatbari, M. (2020). Protective effect of vitamin E on sperm parameters in rats infected with *Candida albicans*. *Andrologia*, 52(7), 1-7. <https://doi.org/10.1111/and.13593>
- Barek, M. E., Hine, T. M., Nalley, W. M., & Belli, H. L. (2020). Pengaruh Penambahan Sari Wortel Dalam Pengenceran Sitrat Kuning Telur Terhadap Kualitas Spermatozoa Kambing Bligon. *Jurnal Nukleus Peternakan*, 7(2), 109-117.
- Doostabadi, M. R., Hassanzadeh-Taheri, M., Asgharzadeh, M., & Mohammadzadeh, M. (2021). Protective effect of vitamin E on sperm parameters, chromatin quality, and DNA fragmentation in mice treated with different doses of ethanol: An experimental study. *International Journal of Reproductive BioMedicine*, 19(6), doi.org/10.18502/ijrm.v19i6.9374
- Rahaby, E. E., Hassan, A. K., & Abbas, O. A. (2019). Study of the toxic effect of vitamin E supplement in male albino rats after 30 days of treatment. *Heliyon*, 5(10). [10.1016/j.heliyon.2019.e02645](https://doi.org/10.1016/j.heliyon.2019.e02645)



- Fitria, L., Lukitowati, F., & Kristiawati, D. (2019). Nilai rujukan untuk evaluasi fungsi hati dan ginjal pada tikus (*Rattus norvegicus* Berkenhout, 1769) Galur Wistar. *Jurnal Pendidikan Matematika dan IPA*, 10(2), 243-258.
<https://doi.org/10.26418/jpmipa.v10i2.34144>
- Fitria, L., Mulyati, T. C., & Budi, A. S. (2015). Profil reproduksi jantan tikus (*Rattus norvegicus* Berkenhout, 1769) galur wistar stadia muda, pradewasa, dan dewasa. *J Biol Papua*, 7(1), 29-36.
<https://doi.org/10.31957/jbp.429>
- Julia, D., & Nita, S. (2019). Pengaruh ekstrak bunga kembang sepatu (*Hibiscus rosa-sinensis* Linn.) terhadap jumlah, motilitas, morfologi, vabilitas spermatozoa tikus jantan (*Rattus norvegicus*). *Biomedical Journal of Indonesia*, 5(1), 34-42.
<https://doi.org/10.32539/bji.v5i1.7976>
- Kartika, A. A., Hotnida, H. C. H., & Fuah, A. M. (2013). Strategi Pengembangan Usaha Ternak Tikus (*Rattus norvegicus*) dan Mencit (*Mus musculus*) di Fakultas Peternakan IPB. *Jurnal Ilmu Produksi dan Teknologi Hasil Peternakan*, 1(3), 147-154.
- Luhulima, F., Tendean, L., & de Queljoe, E. (2014). Pengaruh Pemberian Vitamin E Terhadap Kualitas Spermatozoa Mencit Jantan (*Mus Musculus*) Yang Diberi Paparan Suhu. *eBiomedik*, 2(2).
- Majzoub, A., & Agarwal, A. (2018). Systematic review of antioxidant types and doses in male infertility: Benefits on semen parameters, advanced sperm function, assisted reproduction and live-birth rate. *Arab journal of urology*, 16(1), 113-124.
<https://doi.org/10.1016/j.aju.2017.11.013>
- Malmir, M., Mehranjani, M. S., Faraji, T., & Noreini, S. N. (2021). Antioxidant effect of Vitamin E on the male rat reproductive system by a high oral dose of Bisphenol-A. *Toxicology Research and Application*, 5, 1-11.
<https://doi.org/10.1177/23978473211005562>
- Manehat, F. X., Dethan, A. A., & Tahuk, P. K. (2021). Motility, viability, spermatozoa abnormality, and ph of bali cattle semen in another-yellow water driller stored in a different time. *Journal of Tropical Animal Science and Technology*, 3(2), 76-90.
<https://doi.org/10.32938/jtast.v3i2.1032>
- Momeni, H. R., & Eskandari, N. (2012). Effect of vitamin E on sperm parameters and DNA integrity in sodium arsenite-treated rats. *Iranian Journal of Reproductive Medicine*, 10(3), 249.
- Munteanu, L. G., & Anetrei, C. (2021). Analytical methods used in determining antioxidant view. *International journal of molecular sciences*, 22(7), 3380.
<https://doi.org/10.3390/ijms22073380>
- Arleton, M. D. 2005. *Mammal Species of the World A Taxonomic and Reference*. 2nd ed. By Wilson, Don E. & Reeder, Deeann M. In *Order Rodentia and Superfamily Muroidea*. USA : Johns Hopkins Press.



- Pang, W. K., Amjad, S., Ryu, D. Y., Adegoke, E. O., Rahman, M. S., Park, Y. J., & Pang, M. G. (2022). Establishment of a male fertility prediction model with sperm RNA markers in pigs as a translational animal model. *Journal of Animal Science and Biotechnology*, 13(1), 84. <https://doi.org/10.1186/s40104-022-00729-9>
- Prastowo, S., Dharmawan, P., Nugroho, T., Bachtiar, A., & Pramono, A. (2018). Kualitas semen segar sapi Bali (*Bos javanicus*) pada kelompok umur yang berbeda. *Jurnal Ilmu Ternak Universitas Padjadjaran*, 18(1), 1-7.
- Pubiandara, S., Suharyati, S., & Hartono, M. (2016). Pengaruh penambahan dosis rafinosa dalam pengencer sitrat kuning telur terhadap motilitas, persentase hidup dan abnormalitas spermatozoa sapi ongole. *Jurnal Ilmiah Peternakan Terpadu*, 4(4), 292-299.
- Putra, Y. (2016). Pengaruh rokok terhadap jumlah sel spermatozoa mencit jantan (*Mus Musculus*, Strain Jepang). *Sainstek: Jurnal Sains dan Teknologi*, 6(1), 30-42.
- Rosidah, I., Ningsih, S., Renggan, T. N., Agustini, K., & Efendi, J. (2020). Profil hematologi tikus (*rattus norvegicus*) galur sprague-dawley jantan umur 7 dan 10 minggu. *Jurnal Bioteknologi dan Biosains Indonesia*, 7(1), 136-145.
- Sadeghi, A., Farokhi, F., Shalizar-Jalali, A. and Najafi, G., 2020. Protective effect of vitamin E on sperm quality and in vitro fertilizing potential and testosterone concentration in polyvinyl chloride treated male rats. In *Veterinary Research Forum*. 11(3), 257. <https://doi.org/10.30466/vrf.2019.91184.2206>
- Sabetian, S., Jahromi, B. N., Vakili, S., Forouhari, S., & Alipour, S. (2021). The effect of oral vitamin E on semen parameters and IVF outcome: a double-blinded randomized placebo-controlled clinical trial. *BioMed Research International*, 2021.1-6. <https://doi.org/10.1155/2021/5588275>
- Silalahi, I.A., Turalaki, G.L. and Rumbajan, J.M., 2016. Perbedaan efek pemberian tunggal vitamin e dengan pemberian kombinasi vitamin e dan zink terhadap kualitas spermatozoa tikus wistar (*Rattus Norvegicus*) yang diberi paparan asap rokok. *eBiomedik*, 4(2).
- Syarif, Y. M., Bachri, M. S., & Nurani, L. H. (2016). Potensi ekstrak etanol 70% akar saluang balum (*Lavanga sarmentosa blume kurz*) terhadap kualitas dan viabilitas sperma mencit. *Pharmaciana*, 6(2), 131–138. <https://doi.org/10.12928/pharmaciana.v6i2.4037>
- Treuting, P. M., Dintziz, S. M., & Monyine, K. S. (2018). *Comparative Anatomy And Histology A Mouse, Rat, And Human Atlas*. 2th ed. India : Academic Press.



Arma, R., Biswal, J., & H. Rahman. (2020). *Impacts of Vitamins and Animal Reproduction*. *Current Trends in Veterinary and Dairy* 1), 5-8.

- Widada, H. (2013). Analisis Kandungan Vitamin E pada Buah *Borassus flabellifer* Linn. Menggunakan High Performance Liquid Chromatography (HPLC). *Mutiara Medika: Jurnal Kedokteran dan Kesehatan*, 13(3), 143-150.
- Wolfensohn, S., & Lloyd Maggie. (2013). *Laboratory Animal Management and Welfare Fourth Edition*. UK: Wiley Blacwell
- Wurlina, W., Mustofa, I., Meles, D. K., Safitri, E., Susilowati, S., Mulyati, S. & Utama, S. (2022). α -Tocopherol restores semen quality in rats exposed to 2, 3, 7, 8-tetrachlorodibenzo-p-dioxin. *Veterinary World*, 15(2), 316.
<https://doi.org/10.14202/vetworld.2022.316-323>
- Yulianto, R. A., Isnaeni, W., & Susanti, R. (2013). Pengaruh pemberian vitamin E terhadap kualitas sperma tikus putih yang dipapar timbal. *Life Science*, 2(2).
- Zehiroglu, C., & Ozturk Sarikaya, S. B. (2019). The importance of antioxidants and place in today's scientific and technological studies. *Journal of food science and technology*, 56, 4757-4774. <https://doi.org/10.1007/s13197-019-03952-x>
- Zubair, M. 2017. Effects of dietary Vitamin E on male reproductive system. *Asian Pacific Journal of Reproduction*, 6(4), 145–150.
<https://doi.org/10.12980/apjr.6.20170401>



LAMPIRAN

Lampiran 1. Pembagian kelompok perlakuan

GAMBAR	KETERANGAN
	Pembagian kelompok perlakuan, yang terbagi kedalam 4 kelompok (Kelompok kontrol/P0, P1 dosis 1000mg/kg, P2 dosis 2000mg/kg, dan P3 dosis 3000mg/kg).



Lampiran 2. Pemberian vitamin E secara oral

GAMBAR	KETERANGAN
	Pemberian vitamin E dilakukan secara oral menggunakan sonde oral (<i>gavage</i>).

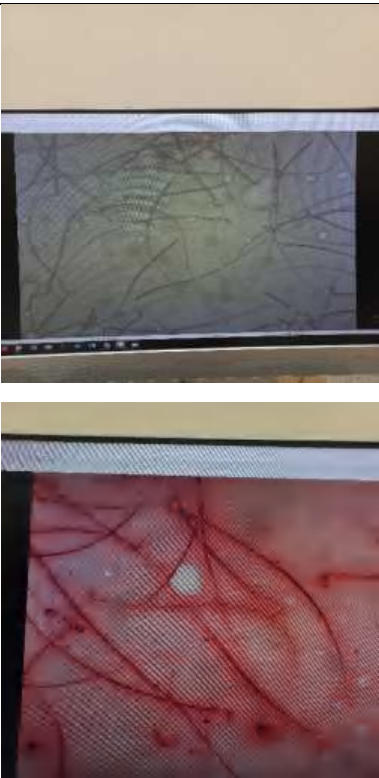


Lampiran 3. Euthanasia dan nekropsi tikus

GAMBAR	KETERANGAN
	Tikus (<i>Rattus norvegicus</i>) jantan yang telah dieuthanasia dan dilakukan nekropsi.



Lampiran 4. Pemeriksaan sampel penelitian

GAMBAR	KETERANGAN
	Pemeriksaan sampel motilitas dan morfologi spermatozoa tikus (<i>Rattus norvegicus</i>) jantan.



Lampiran 5. Data penelitian

Kelompok	Motilitas	Morfologi
P01	70%	0,2
P02	75%	0,31
P03	80%	0,27
P04	80%	0,24
P05	75%	0,25
P06	75%	0,22
P1 1	75%	0,135
P1 2	70%	0,36
P1 3	85%	0,245
P1 4	75%	0,185
P1 5	75%	0,285
P1 6	80%	0,21
P2 1	80%	0,59
P2 2	70%	0,131
P2 3	80%	0,17
P2 4	85%	0,12
P2 5	75%	0,195
P2 6	75%	0,16
P3 1	80%	0,1
P3 2	90%	0,165
P3 3	75%	0,3
P3 4	80%	0,34
P3 5	85%	0,14
P3 6	70%	0,185



Lampiran 6. Uji *Kruskal-Wallis***Ranks**

	perlakuan	N	Mean Rank
motilitas	p0	6	10.58
	p1	6	11.42
	p2	6	12.75
	p3	6	15.25
	Total	24	
morfologi	p0	6	16.17
	p1	6	14.08
	p2	6	9.00
	p3	6	10.75
	Total	24	

Test Statistics^{a,b}

	motilitas	morfologi
Kruskal-Wallis H	1.631	3.753
df	3	3
Asymp. Sig.	.652	.289

a. Kruskal Wallis Test

b. Grouping Variable: perlakuan

