

## DAFTAR PUSTAKA

- Ahmad, R., Awais, M., Kausar, N., & Akram, T. (2023). White Blood Cells Classification Using Entropy-Controlled Deep Features Optimization. *Diagnostic*, 13(3), 1–18.
- Aini, M., Rahayuni, S., Quranayati, & Siah, N. (2021). Bakteri Lactobacillus spp. dan Peranannya bagi Kehidupan. *Jurnal Jeumpa*, 8(2), 614–624.
- Al-hajj, N. Q. M., Algabr, M., Sharif, H. R., Aboshora, W., & Wang, H. (2016). In Vitro and in Vivo Evaluation of Antidiabetic Activity of Leaf Essential Oil of Pulicaria inuloides -Asteraceae. *Journal of Food and Nutrition Research*, 4(7), 461–470.
- Ampangallo, E., Jafar, N., Indriasari, R., Salam, A., & Syam, A. (2021). Hubungan Pola Makan Dengan Kadar Kolesterol Pada Polisi Yang Mengalami Gizi Lebih Di Polresta Sidenreng Rappang. *The Journal of Indonesian Community Nutrition*, 10(2), 173–185.
- Andari, V., & Rahayuni, A. (2014). Pengaruh Pemberian Serbuk Biji Labu Kuning (Curcubita moschata) Terhadap Penurunan Kolesterol Tikus Wistar Hiperkolesterolemia. *Journal of Nutrition College*, 3(4), 506-516.
- Andriani, A. D., Lokapirnasari, W. P., Karimah, B., Hidanah, S., Al-arif, M. A., & Harijani, N. (2020). Efektifitas Probiotik Lactobacillus casei dan Lactobacillus rhamnosus Sebagai Pengganti Antibiotic Growth Promoter Terhadap Total Kolesterol , Low Density Lipoprotein dan High Density Lipoprotein Ayam Broiler. *Jurnal Medik Veteriner*, 3(1), 114–122.
- Asnilawati, A. (2017). Pengaruh Pemberian Diet Virgin Coconut Oil (VCO) terhadap Jumlah Trombosit pada Tikus Putih Jantan (Rattus norvegicus) Hiperkolesterolemik. *Masker Medika*, 5(2), 357–373.
- Astuti, F. K., Rinanti, R. F., & Tribudi, Y. A. (2020). Profil hematologi darah ayam pedaging yang diberi probiotik Lactobacillus plantarum. *Jurnal Nutrisi Ternak Tropis*, 3(2), 106–112.
- Azhar, F. (2013). Pengaruh Pemberian Probiotik dan Prebiotik Terhadap Performan Juvenile ikan Kerapu Bebek ( Comileptes altivelis ). *Buletin Veteriner Udayana*, 6(1), 1–9.
- Buckman, L. B., Hasty, A. H., Flaherty, D. K., Buckman, C. T., Thompsonsona, M. M., Matlock, B. K., Weller, K., & Ellacott, K. L. J. (2014). Obesity induced by a high-fat diet is associated with increased immune cell entry into the central nervous system. *Brain Behav Immun*, 35(1), 1–21.
- Cortés-ortiz, M., Leal-galicia, P., Chávez-álvarez, B. E., Cárdenas-aguayo, M. del C., & Meraz-ríos, M. A. (2014). Effect of Cholesterol Enriched or  $\gamma$ -Acid Diets on Cholesterol and Lipid Levels in Young Wistar Rats. *Advances in Bioscience and Biotechnology*, 5(10), 846–852.
- E., & Corr, S. C. (2022). Lactobacillus spp . for Gastrointestinal Ith : Current and Future Perspectives. *Frontiers in Immunology*, 13, 5.



- Dewi, I. G. M. A., Adi, A. A. A. M., & Setiasih, N. L. E. (2022). Fluktuasi Profil Hematologi Tikus Putih Hewan Model Fibrosarkoma yang Diinduksi Benzo (a) piren. *Indonesia Medicus Veterinus*, 11(2), 267–281.
- Fitria, L., & Sarto, M. (2014). Profil Hematologi Tikus (*Rattus norvegicus* Berkenhout, 1769) Galur Wistar Jantan dan Betina Umur 4, 6, dan 8 Minggu. *Biogenesis*, 2(2), 94–100.
- Frianto, F., Fajriaty, I., & Riza, H. (2015). Evaluasi Faktor Yang Mempengaruhi Jumlah Perkawinan Tikus Putih (*Rattus Norvegicus*) Secara Kualitatif. *Jurnal Mahasiswa Farmasi Fakultas Kedokteran Unatan*, 3(1), 1–4.
- Gautam, A., & Bhaduria, H. (2014). *Classification of White Blood Cells Based on Morphological Features*. 2363–2368.
- Ghosh, A., Gao, L., Thakur, A., Siu, P. M., & Lai, C. W. K. (2017). Role of free fatty acids in endothelial dysfunction. *Journal of Biomedical Science*, 24(1), 1–15.
- Goldberg, I. J., & Bornfeldt, K. E. (2013). Lipids and the endothelium: bidirectional interactions. *Current Atherosclerosis Reports*, 15(11), 365. <https://doi.org/10.1007/s11883-013-0365-1>
- Heriansyah, T. (2013). Pengaruh Berbagai Durasi Pemberian Diet Tinggi Lemak terhadap Profil Lipid tikus Putih (*Rattus Norvegicus Strain Wistar*) Jantan. *Jurnal Kedokteran Syiah Kuala*, 13(3), 144–150.
- Hidayatullah, M. R. (2020). Prevention of Increasing Total Cholesterol Level Using Cowpea Yoghurt. *Media Keperawatan Indonesia*, 3(1), 38.
- Huang, R., Wu, F., Zhou, Q., Wei, W., Yue, J., Xiao, B., & Luo, Z. (2022). Lactobacillus and intestinal diseases: Mechanisms of action and clinical applications. *Microbiological Research*, 260.
- Irawan, R. H. W. (2014). Pengaruh yoghurt susu kambing sebagai pencegahan untuk hiperkolesterolemia melalui pengamatan malondialdehida (MDA) dan TNF- $\alpha$  pada jantung hewan model tikus (*Rattus norvegicus*).
- Isdadiyanto, S. (2015). Ratio Kadar Ldl / Hdl Tikus Putih Sprague Dawley Hiperlipidemia Setelah Diberi Cangkang Udang Laut ( Penaeus monodon F.). *BIOMA*, 17(2), 118–122.
- Jumaah, N., Joshi, S. R., & Sandai, D. (2014). Prevalence of Bacterial Contamination when using a Diversion Pouch during Blood Collection : A Single Center Study in Malaysia. *Malaysian Journal of Medical Sciences*, 21(3), 47–53.
- Kartika, A. A., Siregar, 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*, 01(3), 147–154.
- Li, N., Sharma, P. K., & Sharma, D. C. (2014). Screening and Evaluation of Lactobacillus spp . for the development of potential probiotics. *African Journal of Microbiology Research*, 8(15), 1573–9.



- Kim, J. A., Montagnani, M., Chandrasekran, S., & Quon, M. J. (2012). Role of Lipotoxicity in Endothelial Dysfunction. *Heart Failure Clinics*, 8(4), 589–607.
- Kristanti, R. A. (2018). Pengaruh Pemberian Diet Tinggi Lemak Terhadap Konsentrasi Secretory Immunoglobulin A (Siga) Saliva Tikus Putih *Rattus Norvegicus* Yang Diinduksi Bakteri *Aggregatibacter actinomycetemcomitans* (Aa). *Journal of Islamic Medicine*, 2(4), 33–43.
- Kusumahjaja, G. A., Narayani, I., & Wijana, I. M. S. (2022). Pengaruh Vitamin C Pada Profil Darah Tikus (*Rattus Norvegicus*) Jantan Yang Diinduksi Natrium Nitrit (Nano 2). *Simbiosis*, 10(2), 186–198.
- Liu, Y., Lu, X., Li, X., Du, P., & Qin, G. (2020). High-fat diet triggers obesity-related early infiltration of macrophages into adipose tissue and transient reduction of blood monocyte count. *Molecular Immunology*, 117, 139–146.
- Lutfiana, K., Kurtini, T., & Hartono, M. (2015). Pengaruh Pemberian Probiotik Dari Mikroba Lokal Terhadap Gambaran Darah Ayam Petelur. *Jurnal Ilmiah Peternakan Terpadu*, 3(3), 151–156.
- Maftukhah, S. (2020). Aplikasi *Bacillus* sp Pada Produksi Enzim Menggunakan Metode Fermentasi Padat - Review. *Jurnal Pendidikan Dan Aplikasi Industri*, 7(1), 6–9.
- Magne, F., Gotteland, M., Gauthier, L., Zazueta, A., Pesoa, S., Navarrete, P., & Balamurugan, R. (2020). The firmicutes/bacteroidetes ratio: A relevant marker of gut dysbiosis in obese patients? *Nutrients*, 12(5).
- Martinez, R. M., Hulten, K. G., Bui, U., & Clarridge, J. E. (2014). Molecular Analysis and Clinical Significance of *Lactobacillus* spp . Recovered from Clinical Specimens Presumptively Associated with Disease. *Journal of Clinical Microbiology*, 52(1), 30–36.
- Maryati, Y., Nuraida, L., & Dewanti-hariyadi, R. (2016). Kajian Isolat Bakteri Asam Laktat Dalam Menurunkan Kolesterol Secara In Vitro dengan Keberadaan Oligosakarida. *AGRITECH*, 36(2), 196–206.
- Mazziotta, C., Tognon, M., Martini, F., Torreggiani, E., & Rotondo, J. C. (2023). Probiotics Mechanism of Action on Immune Cells and Beneficial Effects on Human Health. *Cells*, 12(1), 1–33. <https://doi.org/10.3390/cells12010184>
- Melati, F. D. P., Widiani, F. L., & Inayah. (2021). Asupan Lemak Jenuh dengan Kadar Lipoprotein pada Kelompok Lanjut Usia Kolesterol. *Jurnal Nutrisia*, 23(1), 44–51.
- Mulyati, & Islahi, A. N. (2023). Profil Lipid Tikus Putih (*Rattus norvegicus* Berkenhout, 1769) Galur Wistar dengan Perlakuan *Ulva lactuca* L. *Metamorfosa: Journal of Biological Sciences*, 10(1), 257–266.
- Nangin, D., & Sutrisno, A. (2015). Enzim Amilase Pemecah Pati Mentah Dari Mikroba : Kajian Pustaka. *Jurnal Pangan Dan Argoindustri*, 3(3), 2–1039.
- Suprihatin, T., & Saraswati, T. R. (2022). Peran Serbuk Kunyit dan Kumin terhadap Diferensial Leukosit Tikus Putih (*Rattus norvegicus*) yang Diberi Pakan Hiperlipid. *Buletin Anatomi Dan*



- Fisiologi*, 7(1), 42–50.
- Nyah, N. U., Effiong, J. O., Okon, O. E., Obosi, E. J., & Essien, U. A. (2023). Effects of Ethanol leaf extracts of *Mangifera indica* and *Gongronema latifolium* on some Haematological Parameters of Albino Wistar Rats. *Asian Journal of Research in Biochemistry*, 13(2), 1–6.
- Purnomo, D., Sugiharto, & Isroli. (2015). Total leukosit dan diferensial leukosit darah ayam broiler akibat penggunaan tepung onggok fermentasi *rhizopus oryzae* pada ransum. *Jurnal Ilmu-Ilmu Peternakan*, 25(3), 59–68.
- Putri, A. A., Erina, & Fakhrurazi. (2018). Isolasi Bakteri Asam laktat Genus *Lactobacillus* dari Feses Rusa Sambar (*Cervus unicolor*). *Jurnal Ilmiah Mahasiswa Veteriner*, 2(1), 170–176.
- Rahmawati, N., Syukri, M., Darmawi, D., Zachreini, I., Zulfiani, U., Yusuf, M., & Idroes, R. (2022). Haematological Features of White Rats (*Rattus norvegicus*) Infected with *S. pyogenes* and Administered with Probiotics (Yogurt). *The Scientific World Journal*, 2022, 1–5.
- Rejeki, P. S., Putri, E. A. C., & Prasetya, R. E. (2018). *Ovariektomi pada Tikus dan Mencit* (P. S. Rejeki, E. A. C. Putri, & R. E. Prasetya (eds.)). Airlangga University Press.
- Rinanti, R. F., Utomo, B., & Tribudi, Y. A. (2022). Mekanisme Konsumsi Kefir Pada Penurunan Kolesterol Darah. *Jurnal Ilmiah Fillia Cendikia*, 7(2), 166–172.
- Rinninella, E., Raoul, P., Cintoni, M., Franceschi, F., Miggiano, G. A. D., Gasbarrini, A., & Mele, M. C. (2019). What is the healthy gut microbiota composition? A changing ecosystem across age, environment, diet, and diseases. *Microorganisms*, 7(1).
- Rosidah, I., Ningsih, S., Renggani, T. N., Agustini, K., & Efendi, J. (2020). Profil Hematologi Tikus (*Rattus norvegicus*) Galur Sprague-Dawley Jantan Umur 7 Dan 10 Minggu. *Jurnal Bioteknologi & Biosains Indonesia*, 7(1), 136–145.
- Rusmini, H., Febriani, D., Hidayat, & Risandy, D. (2020). Pengaruh Madu Ceiba Pentandra Terhadap Kadar LDL Tikus *Rattus Norvegicus* Yang Diberi Diet Tinggi Lemak. *Jurnal Ilmiah Kesehatan Sandi Husada*, 11(1), 479–489.
- Schulz, E., Gori, T., & Münzel, T. (2011). Oxidative stress and endothelial dysfunction in hypertension. *Hypertension Research*, 34(6), 665–673. <https://doi.org/10.1038/hr.2011.39>
- Shuhadha, M. F. F., Panagoda, G. J., Madhujith, T., & Jayawardana, N. W. I. A. (2017). Evaluation of probiotic attributes of *Lactobacillus* sp. isolated from cow and buffalo curd samples collected from Kandy. *Ceylon Medical Journal*, 62(3), 159–166.
- Shanmugam, M. D., Venkatesan, D., Iyer, M., Subbarayan, S., Bindasami, V., Roy, A., Narayanasamy, A., Kamalakannan, S., Balakrishnan, A. V., Thangarasu, R., Kumar, N. S., & Vellingiri, B. (2020). Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel



- coronavirus COVID- 19 . The COVID-19 resource centre is hosted on Elsevier Connect , the company ' s public news and information. *Curr Opin Environ Sci Health*, 17, 72–81.
- Sumardi, Sutyarso, Susanto, G. N., Kurtini, T., Hartono, M., Etty, R., & Puspitaningsih, N. W. (2016). Pengaruh Probiotik Terhadap Kolesterol Darah Pada Ayam Petelur ( Layer ). *Jurnal Kedokteran Hewan*, 10(2), 128–131.
- Suseno, D. N., Puspitasari, I., & Jayanti, S. (2022). Efektivitas Probiotik Terhadap Efisiensi Pakan Dan Ulas Darah Ikan Komet ( Carassius auratus ). *Jurnal Grouper*, 13(2), 184–190.
- Suva, M., Sureja, V., & Kheni, D. (2016). Novel insight on probiotic *Bacillus subtilis*: Mechanism of action and clinical applications. *Journal of Current Research in Scientific Medicine*, 2(2), 65–72.
- Tanaka, S., Nemoto, Y., Takei, Y., Morikawa, R., Oshima, S., Nagaishi, T., Okamoto, R., Tsuchiya, K., Nakamura, T., Stutte, S., & Watanabe, M. (2020). High-fat diet-derived free fatty acids impair the intestinal immune system and increase sensitivity to intestinal epithelial damage. *Biochemical and Biophysical Research Communications*, 522(4), 971–977.
- Tomaro-Duchesneau, C., Jones, M. L., Shah, D., Jain, P., Saha, S., & Prakash, S. (2014). Cholesterol Assimilation by *Lactobacillus* Probiotic Bacteria: An in Vitro Investigation. *BioMed Research International*, 2014, 1–9.
- Udomkasemsab, A., & Prangthip, P. (2018). High fat diet for induced dyslipidemia and cardiac pathological alterations in Wistar rats compared to Sprague Dawley rats. *Clínica e Investigación En Arteriosclerosis*, 31(2), 56–62.
- Umasugi, A., Tumbol, R. A., Kreckhoff, R. L., Manoppo, H., Pangemanan, N. P. L., & Ginting, E. L. (2018). Penggunaan bakteri probiotik untuk pencegahan infeksi bakteri *Streptococcus agalactiae* pada ikan Nila, *Oreochromis niloticus*. *Budidaya Perairan*, 6(2), 39–44.
- Utami, E. T., Risqillah, U., & Fajariah, S. (2020). Profil hematologi mencit ( *Mus musculus* L .) strain Balb / c jantan akibat paparan asap rokok elektrik. *Jurnal Biologi Udayan*, 24(2), 115–125.
- Verawati, T. A., & Nurcahyo, H. (2023). Pengaruh Pemberian Probiotik Asam Laktat (*Lactobacillus* Sp.) Terhadap Jumlah Limfosit, Heterofil, Eosinofil Dan Monosit Ayam Broiler. *The Journal of Biological Studies*, 9(1), 56–62.
- Wang, X., Tsai, T., Wei, X., Zuo, B., Davis, E., Rehberger, T., Hernandez, S., Jochems, E. J. M., Maxwell, C. V., & Zhao, J. (2021). Effect of lactylate and *bacillus subtilis* on growth performance, peripheral blood profile, and gut microbiota of nursery pigs. *Microorganisms*, 9(4), 1–11.
- Yıldız, N., Yılmaz, B., Ağagündüz, D., & Capasso, R. (2021). Involvement of Probiotics and Postbiotics in the Immune System Modulation. *Biologics*, 1(2), 89–110.



- Yu, T., Kong, J., Zhang, L., Gu, X., Wang, M., & Guo, T. (2019). New crosstalk between probiotics *Lactobacillus plantarum* and *Bacillus subtilis*. *Scientific Reports*, 9(1), 1–9.
- Zhang, M., & Yang, X. J. (2016). Effects of a high fat diet on intestinal microbiota and gastrointestinal diseases. *World Journal of Gastroenterology*, 22(40), 8905–8909.
- Zhao, X., Zhong, X., Liu, X., Wang, X., & Gao, X. (2021). Therapeutic and Improving Function of *Lactobacilli* in the Prevention and Treatment of Cardiovascular-Related Diseases: A Novel Perspective From Gut Microbiota. *Frontiers in Nutrition*, 8, 1–18.



## LAMPIRAN

### Lampiran 1. Kandang kelompok perlakuan



## Lampiran 2. Proses pembuatan pakan *high fat*



### Lampiran 3. Pemberian pakan *high fat*



#### Lampiran 4. Pengambilan sampel darah pertama



## Lampiran 5. Pemberian suplemen probiotik



## Lampiran 6. Pengambilan sampel darah kedua



## Lampiran 7. Alat *hematology analyzer*



## Lampiran 8. Data hasil pemeriksaan sampel darah

### Sampel darah pertama

No	Tikus	WBC	Limfosit (%)	Mid (%)	Gran (%)
1	K-2	24700	46,2%	6,1%	47,8%
2	K-5	13700	53,8%	3,1%	43,1%
3	K-6	35700	38,5%	9,0%	52,5%
4	K+1	21400	50,4%	4,4%	45,2%
5	K+2	26400	43,5%	4,4%	52,0%
6	K+3	26400	34,6%	7,8%	57,6%
7	K+5	17300	43,6%	7,0%	49,4%
8	K+6	38400	32,0%	9,2%	58,8%
9	KP <sup>13</sup>	31900	41,4%	8,6%	50,0%
10	KP <sup>14</sup>	39000	33,3%	9,0%	57,7%
11	KP <sup>15</sup>	15700	59,8%	6,0%	34,2%
12	KP <sup>22</sup>	19200	41,2%	7,9%	50,9%
13	KP <sup>25</sup>	7600	52,9%	4,0%	43,1%
14	KP <sup>26</sup>	46200	29,3%	9,3%	61,4%
15	KP <sup>33</sup>	66900	30,1%	10,3%	59,6%
16	KP <sup>34</sup>	37900	42,8%	7,8%	49,4%
17	KP <sup>35</sup>	11100	58,0%	3,9%	38,1%

### Sampel darah kedua

No	Tikus	WBC	Limfosit (%)	Mid (%)	Gran (%)
1	K-2	13300	59,1%	7,5%	33,4%
2	K-5	12100	77,3%	6,4%	16,3%
3	K-6	19200	56,9%	9,1%	34,0%
4	K+1	32800	78,1%	6,1%	15,8%
5	K+2	600	65,8%	11,5%	22,6%
6	K+3	28100	56,7%	11,3%	32,0%
7	K+5	17600	62,2%	10,0%	27,8%
8	K+6	21600	70,4%	7,9%	21,7%
9	KP <sup>13</sup>	21900	58,1%	10,6%	31,3%
10	KP <sup>14</sup>	21400	62,3%	11,9%	25,8%
11	KP <sup>15</sup>	14100	52,2%	9,0%	38,8%
12	KP <sup>22</sup>	17100	63,5%	9,5%	27,0%
13	KP <sup>25</sup>	40200	62,2%	10,0%	27,8%
26		18600	57,8%	10,7%	31,5%
33		8400	58,5%	8,1%	33,4%
34		21800	67,3%	10,0%	22,7%
35		20700	62,0%	9,3%	28,7%



## Lampiran 9. Uji deskriptif

Kelompok	Tikus	Jumlah Leukosit	
		Highfat	Probiotik
K-	K-2	2,47,E+04	1,33,E+04
	K-5	1,37,E+04	1,21,E+04
	K-6	3,57,E+04	1,92,E+04
	X ± SD	2,47E+04 ± 1,10E+04	1,49E+04 ± 3,80E+03
K+	K+1	2,14,E+04	3,28,E+04
	K+2	2,64,E+04	6,00,E+02
	K+3	2,64,E+04	2,81,E+04
	K+5	1,73,E+04	1,76,E+04
	K+6	3,84,E+04	2,16,E+04
	X ± SD	2,60E+04 ± 7,92E+03	2,01E+04 ± 1,24E+04
KP <sup>1</sup>	KP <sup>1</sup> 3	3,19,E+04	2,19,E+04
	KP <sup>1</sup> 4	3,90,E+04	2,14,E+04
	KP <sup>1</sup> 5	1,57,E+04	1,41,E+04
	X ± SD	2,89E+04 ± 1,19E+04	1,91E+04 ± 4,37E+03
KP <sup>2</sup>	KP <sup>2</sup> 2	1,92,E+04	1,71,E+04
	KP <sup>2</sup> 5	7,60,E+03	4,02,E+04
	KP <sup>2</sup> 6	4,62,E+04	1,86,E+04
	X ± SD	2,43E+04 ± 1,98E+04	2,53E+04 ± 1,29E+04
KP <sup>3</sup>	KP <sup>3</sup> 3	6,69,E+04	8,40,E+03
	KP <sup>3</sup> 4	3,79,E+04	2,18,E+04
	KP <sup>3</sup> 5	1,11,E+04	2,07,E+04
	X ± SD	3,86E+04 ± 2,79E+04	1,70E+04 ± 7,44E+03

Kelompok	Tikus	Persentase Limfosit	
		Highfat	Probiotik
K-	K-2	46,15%	59,10%
	K-5	53,80%	77,30%
	K-6	38,50%	56,90%
	X ± SD	46,15% ± 7,65%	64,43% ± 11,20%
	K+1	50,40%	78,10%
	K+2	43,50%	65,80%
	K+3	34,60%	56,70%
	K+5	43,60%	62,20%
	K+6	32,00%	70,40%

	X ± SD	40,82% ± 7,47%	66,64% ± 8,13%
KP <sup>1</sup>	KP <sup>1</sup> 3	41,40%	58,10%
	KP <sup>1</sup> 4	33,30%	62,30%
	KP <sup>1</sup> 5	59,80%	52,20%
	X ± SD	44,83% ± 13,58%	57,53% ± 5,07%
KP <sup>2</sup>	KP <sup>2</sup> 2	41,20%	63,50%
	KP <sup>2</sup> 5	52,90%	62,20%
	KP <sup>2</sup> 6	29,30%	57,80%
	X ± SD	41,13% ± 11,80%	61,17% ± 2,99%
KP <sup>3</sup>	KP <sup>3</sup> 3	30,10%	58,50%
	KP <sup>3</sup> 4	42,80%	67,30%
	KP <sup>3</sup> 5	58,00%	62,00%
	X ± SD	43,63% ± 13,97%	62,60% ± 4,43%

Kelompok	Tikus	Percentase Mid	
		Highfat	Probiotik
K-	K-2	6,05%	7,50%
	K-5	3,10%	6,40%
	K-6	9,00%	9,10%
	X ± SD	6,05% ± 2,95%	7,67% ± 1,36%
K+	K+1	4,40%	6,10%
	K+2	4,50%	11,60%
	K+3	7,80%	11,30%
	K+5	7,00%	10,00%
	K+6	9,20%	7,90%
	X ± SD	6,58% ± 2,10%	9,38% ± 2,34%
KP <sup>1</sup>	KP <sup>1</sup> 3	8,60%	10,60%
	KP <sup>1</sup> 4	9,00%	11,90%
	KP <sup>1</sup> 5	6,00%	9,00%
	X ± SD	7,87% ± 1,63%	10,50% ± 1,45%
KP <sup>2</sup>	KP <sup>2</sup> 2	7,90%	9,50%
	KP <sup>2</sup> 5	4,00%	10,00%
	KP <sup>2</sup> 6	9,30%	10,70%
	X ± SD	7,07% ± 2,75%	10,07% ± 0,60%
	KP <sup>3</sup> 3	10,30%	8,10%
	KP <sup>3</sup> 4	7,80%	10,00%
	KP <sup>3</sup> 5	3,90%	9,30%
	X ± SD	7,33% ± 3,23%	9,13% ± 0,96%



Kelompok	Tikus	Percentase Gran	
		Highfat	Probiotik
K-	K-2	47,80%	33,40%
	K-5	43,10%	16,30%
	K-6	52,50%	34,00%
	X ± SD	47,80% ± 4,70%	27,90% ± 10,05%
K+	K+1	45,20%	15,80%
	K+2	52,00%	22,60%
	K+3	57,60%	32,00%
	K+5	49,40%	27,80%
	K+6	58,80%	21,70%
	X ± SD	52,60% ± 5,67%	23,98% ± 6,18%
KP <sup>1</sup>	KP <sup>1</sup> 3	50,00%	31,30%
	KP <sup>1</sup> 4	57,70%	25,80%
	KP <sup>1</sup> 5	34,20%	38,80%
	X ± SD	47,30% ± 11,98%	31,97% ± 6,53%
KP <sup>2</sup>	KP <sup>2</sup> 2	50,90%	27,00%
	KP <sup>2</sup> 5	43,10%	27,80%
	KP <sup>2</sup> 6	61,40%	31,50%
	X ± SD	51,80% ± 9,18%	28,77% ± 2,40%
KP <sup>3</sup>	KP <sup>3</sup> 3	59,60%	33,40%
	KP <sup>3</sup> 4	49,40%	22,70%
	KP <sup>3</sup> 5	38,10%	28,70%
	X ± SD	49,03% ± 10,75%	28,27% ± 5,36%



## Lampiran 10. Uji normalitas

### Highfat

**Tests of Normality**

	Tikus	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
WBC	K-	.175	3	.	1.000	3	1.000
	K+	.279	5	.200*	.924	5	.559
	KP1	.267	3	.	.952	3	.576
	KP2	.269	3	.	.950	3	.568
	KP3	.178	3	.	.999	3	.957
Limfosit	K-	.175	3	.	1.000	3	1.000
	K+	.240	5	.200*	.929	5	.592
	KP1	.266	3	.	.952	3	.578
	KP2	.175	3	.	1.000	3	.991
	KP3	.190	3	.	.997	3	.901
Mid	K-	.175	3	.	1.000	3	1.000
	K+	.239	5	.200*	.903	5	.425
	KP1	.340	3	.	.848	3	.235
	KP2	.286	3	.	.931	3	.492
	KP3	.224	3	.	.984	3	.760
Gran	K-	.175	3	.	1.000	3	1.000
	K+	.211	5	.200*	.943	5	.684
	KP1	.256	3	.	.962	3	.625
	KP2	.206	3	.	.993	3	.838
	KP3	.180	3	.	.999	3	.944

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction



## Probiotik

### Tests of Normality

	Tikus	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
WBC	K-	.327	3	.	.873	3	.303
	K+	.219	5	.200*	.933	5	.617
	KP1	.365	3	.	.798	3	.109
	KP2	.365	3	.	.798	3	.111
	KP3	.359	3	.	.811	3	.141
Limfosit	K-	.350	3	.	.830	3	.188
	K+	.141	5	.200*	.992	5	.986
	KP1	.211	3	.	.991	3	.815
	KP2	.302	3	.	.910	3	.419
	KP3	.221	3	.	.986	3	.775
Mid	K-	.216	3	.	.989	3	.797
	K+	.204	5	.200*	.913	5	.485
	KP1	.194	3	.	.996	3	.886
	KP2	.211	3	.	.991	3	.817
	KP3	.236	3	.	.977	3	.712
Gran	K-	.375	3	.	.775	3	.057
	K+	.188	5	.200*	.980	5	.932
	KP1	.207	3	.	.992	3	.831
	KP2	.323	3	.	.878	3	.320
	KP3	.199	3	.	.995	3	.866

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction



## Lampiran 11. Uji T

K+

Paired Samples Test									
		Paired Differences			95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	KPlus_WBC_Highfat - KPlus_WBC_Probiotik	5840.00000	15085.52286	6746.45092	-12891.15063	24571.15063	.866	4	.436
Pair 5	KPlus_Limfosit_persen_Highfat - KPlus_Limfosit_persen_Probiotik	-.25820	.07748	.03465	-.35441	-.16199	-7.451	4	.002
Pair 6	KPlus_Mid_persen_Highfat - KPlus_Mid_persen_Probiotik	-.02800	.03043	.01361	-.06578	.00978	-2.057	4	.109
Pair 7	KPlus_Gran_persen_Highfat - KPlus_Gran_persen_Probiotik	.28620	.05734	.02564	.21500	.35740	11.160	4	.000



## KP1

### Paired Samples Test

		Paired Differences			95% Confidence Interval of the Difference			t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper				
Pair 1	KP1_WBC_Highfat - KP1_WBC_Probiotik	9733.33333	8003.33264	4620.72625	-10148.04710	29614.71376	2.106	2	.170	
Pair 2	KP1_Limfosit_persen_Highfat - KP1_Limfosit_persen_Probiotik	-.12700	.18625	.10753	-.58967	.33567	-1.181	2	.359	
Pair 3	KP1_Mid_persen_Highfat - KP1_Mid_persen_Probiotik	-.02633	.00551	.00318	-.04001	-.01265	-8.281	2	.014	
Pair 4	KP1_Gran_persen_Highfat - KP1_Gran_persen_Probiotik	.15333	.18481	.10670	-.30577	.61244	1.437	2	.287	



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## KP2

### Paired Samples Test

		Paired Differences			95% Confidence Interval of the Difference			t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper				
Pair 1	KP2_WBC_Highfat - KP2_WBC_Probiotik	-966.66667	30216.93786	17445.75720	-76029.70153	74096.36819	-.055	2	.961	
Pair 2	KP2_Limfosit_persen_Highfat - KP2_Limfosit_persen_Probiotik	-.20033	.09799	.05657	-.44375	.04308	-3.541	2	.071	
Pair 3	KP2_Mid_persen_Highfat - KP2_Mid_persen_Probiotik	-.03000	.02600	.01501	-.09459	.03459	-1.999	2	.184	
Pair 4	KP2_Gran_persen_Highfat - KP2_Gran_persen_Probiotik	.23033	.07338	.04237	.04804	.41263	5.436	2	.032	



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## KP3

### Paired Samples Test

Paired Differences

95% Confidence Interval of the

Difference

		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	KP3_WBC_Highfat - KP3_WBC_Probiotik	21666.66667	34389.58176	19854.83428	-63761.79026	107095.12360	1.091	2	.389
Pair 2	KP3_Limfosit_persen_Highfat - KP3_Limfosit_persen_Probiotik	-.18967	.13107	.07568	-.51527	.13594	-2.506	2	.129
Pair 3	KP3_Mid_persen_Highfat - KP3_Mid_persen_Probiotik	-.01800	.03816	.02203	-.11279	.07679	-.817	2	.500
Pair 4	KP3_Gran_persen_Highfat - KP3_Gran_persen_Probiotik	.20767	.09847	.05685	-.03695	.45228	3.653	2	.067



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## RIWAYAT HIDUP PENULIS



Penulis lahir dengan nama lengkap Putri Amalia Febriani Syahrir di Maros pada tanggal 6 Maret 2003. Penulis merupakan anak ketiga dari pasangan suami istri Syahrir, SE. dan Suharni. Penulis memulai pendidikan di SD 181 Inpres Kampung Tangnga dan lulus pada tahun 2014. Setelah itu, penulis melanjutkan pendidikan di SMP Negeri 5 Mandai dan lulus tahun 2017. Kemudian penulis melanjutkan pendidikan di SMA Negeri 8 Maros dan lulus pada tahun 2020. Pada tahun yang sama, penulis melanjutkan pendidikan di Program Studi Kedokteran Hewan, Fakultas Kedokteran Universitas Hasanuddin melalui jalur SBMPTN. Selama perkuliahan penulis aktif di organisasi internal kampus yaitu Himpunan Mahasiswa Kedokteran Hewan (HIMAKAHA) FK-UNHAS sebagai Anggota Biro Dana dan Usaha periode 2022/2023 dan sebagai Anggota Bidang Kaderisasi periode 2023/2024. Penulis juga aktif dalam kegiatan akademik dan menjadi bagian Tim Asisten Laboratorium Bedah Veteriner pada tahun 2023 - sekarang. Penulis menyusun skripsi dengan judul "**Pengaruh Pemberian Probiotik Terhadap Profil Leukogram pada Tikus Wistar (*Rattus norvegicus*) Berkolesterol Tinggi**".

