

DAFTAR PUSTAKA

- Abmi, C., Nedi, S & Effendi, I. 2021. *Water Pollution Levels Based on Organic Matter Parameters and Amount of Escherichia coli Bacteria in the Mosque River Estuary of Dumai City.* *Journal of Coastal and Ocean Sciences* vol. 2, no. 2:127-136
- Adriana, R. 2017. Keberadaan Bakteri *Escherichia coli* di Kawasan Wisata Pantai Tanjung Bayang dan Akkarena Kota Makassar. Skripsi. Universitas Hasanuddin
- Adrianto, R. 2018. Pemantauan Jumlah Bakteri *Coliform* di Perairan Sungai Provinsi Lampung. Majalah TEGI, vol. 10, no. 1:1–6. <https://doi.org/10.46559/tegi.v10i1.3920>
- Agustina, A.C. 2021. Analisis Cemaran *Coliform* dan Identifikasi *Escherichia coli* dari Depo Air Minum Isi Ulang di Kota Semarang. *Life Science*, vol. 10, no. 1:23–32. <https://doi.org/10.15294/lifesci.v10i1.47167>
- Alifia, E.S & Aji, O.R. 2021. Analisis Keberadaan *Coliform* dan *Escherichia coli* pada Es Batu dari Jajanan Minuman di Pasar Tengah Bandar Lampung. Quagga: Jurnal Pendidikan dan Biologi, vol. 13, no.1:74-81. doi: 10.25134/quagga.v13i1.3698
- Arivo & Annissatusholeh, D & Annissatusholeh, N. 2017. Pengaruh Tekanan Osmotik pH, dan Suhu Terhadap Pertumbuhan Bakteri *Escherichia coli*. *Jurnal Ilmu Kedokteran Dan Kesehatan*, vol. 4, no. 3, 153–160.
- Ayu, C. 2019. Gejala Penyerta Pada Balita Diare Dengan Infeksi Enteropathogenic *Escherichia coli* (Epec) Di Puskesmas Rawat Inap Kota Pekanbaru, vol 1–7.
- Badan Standar Nasional. 1991. Metode Pengambilan Contoh Kualitas Air. SNI 06-2412-1991. Badan Standar Nasional. Indonesia
- Badan Standar Nasional. 2006. Cara Uji Mikrobiologi, Angka Paling Memungkinkan/APM dengan Seri Tabung Pengenceran. SNI 01-2332.1-2006. Badan Standar Nasional. Indonesia
- Beld VDMJC & Reubaet FAG. 2012. *Differentiation Between Shigella, Enteroinvasive Escherichia coli (EIEC) And Noninvasive Escherichia coli . Eur J Clin Microbiol Infect Dis* **31**, 899–904
- Beveridge, T.J & Davies, J.A. 1983. *Cellular Responses of Bacillus subtilis and Escherichia coli to the Gram Stain.* *Journal of Bacteriology* vol. 156, no. 2:846-58. doi: 10.1128/jb.156.2.846-858
- Bishop, R.E & Ferguson, A.D. 2004. *The interaction between bacterial lipopolysaccharide and host factors.* *Current Opinion in Microbiology*, vol. 7, no. 1: 68-71.
- Boehm, A.B., Grant, S.B., Kim, J.H & Mowbray, S.L. 2013. *Decadal and shorter period variability of surf zone water quality at Huntington Beach, California.* *Environmental science & technology*, vol. 47,no. 21:12454-12461. doi: 10.1021/es4019649
- Bouteleux, C., Saby, S., Tozza, D., Cavard, J., Lahoussine, V., Hartemann, P & Mathieu, L. 2005. *Escherichia coli Behaviour in the Presence of Organic Matter Release*

by Algae Exposed to Water treatment Chemicals. Environmental Microbiology
vol. 71, no 1: 734-740

Canale, R. P., Auer, M. T., Owens, E. M., Heidtke, T. M., & Effler, S. W. (1993). *Modeling fecal coliform bacteria—II. Model development and application. Water Research*, 27(4), 703–714. doi:10.1016/0043-1354(93)90180-p

Centers for Disease Control and Prevention. 2018. *Escherichia coli (E. coli)*. Retrieved from <https://www.cdc.gov/ecoli/general/index.html>

Chen, Q., Zhang, R & Shen, Q. 2012. *Effect of soil organic matter on the growth of Escherichia coli O157: H7 in soil. Journal of environmental sciences*, vol. 24(6), 1106-1111.

Cheung, W. H. S., Chang, K. C. K., Hung, R. P. S., & Kleevens, J. W. L. 1990. *Health effects of beach water pollution in Hong Kong. Epidemiology and Infection*, 105(01), 139–162. doi:10.1017/s0950268800047737

Daramusseng, A. 2021. Studi Kualitas Air Sungai Karang Mumus Ditinjau dari Parameter Escherichia coli Untuk Keperluan Higiene Sanitasi. vol. 20, no. 32:1–6.

Diarti, W.M., Rohmi-Achmad, K.S.Y & Jiwintarum, Y. 2017. Karakteristik Morfologi, Koloni Dan Biokimia Bakteri Yang Diisolasi Dari Sedimen Laguna Perindukan Nyamuk. *Jurnal Kesehatan Prima*, vol. I(2), 124–136.

Escherich, T. 1988. *The Intestinal Bacteria of the Neonate and Breast-Fed Infant. Clinical Infectious Diseases*, 10(6), 1220–1225. doi:10.1093/clinids/10.6.1220

Erwin. 2014. Tingkat Pencemaran pada Saat Pasang dan Surut di Perairan Pantai Kota Makassar. Skripsi. Universitas Hasanuddin

Feng, P., Weagant, S. D & Grant, D. A. 2003. *Enumeration of Escherichia coli and the Coliform Bacteria*

Feliatra, 2002, Sebaran Bakteri Escherichia coli di Perairan Muara Sungai Bantan Tengah Bengkalis Riau, Fakultas Perikanan dan Kelautan, Universitas Riau ,Pekanbaru. Jur.Biogen. 1. 178-18.

Frank, C., Werber, D., Cramer, J.P., Askar, M., Faber, M., Bernard, H., Fruth, A., Prager, R & Spode, A. 2011. *Epidemic profile of Shiga-toxin-producing Escherichia coli O104:H4 outbreak in Germany. New England Journal of Medicine*, vol. 365,no. 19:1771-1780. doi: 10.1056/NEJMoa1106483

Gunawan., Kholik & Agustin, A. L. D. Profil Uji Biokima Hasil Isolasi Escherichia coli pada Feses,Air Minum Dan Air Saluran Buangan Kandang Sapi Bali Di Kelompok Tani Ternak Menemeng (KT2M)Kabupaten Lombok Tengah. Mandalika Veterinary Journal, vol. 2, no.1:26-36. doi: 10.33394/MVJ.V1I2.2021.1-6

Ghozali, I. 2016. Aplikasi Analisis Multivariate Dengan ProGram IBM SPSS 23, 8th ed. Semarang: Badan Penerbit Universitas Diponegoro.

Gruber, J.S., Ercumen, A & Colford Jr, J.M. 2014. *Coliform Bacteria as Indicators of Diarrheal Risk in Household Drinking Water: Systematic Review and Meta Analysis. PLoS ONE* vol. 9 no. 9

- Hadiansyah, N.K., Junitasari, A & Gustiana E. 2021. Analisis Bakteri *Coliform* dalam Sampel Air Minum PAMSIMAS di Kabupaten Kuningan. *Jurnal Kartika Kimia*, vol. 4, no. 2, pp. 89-95, doi:[10.26874/jkk.v4i2.89](https://doi.org/10.26874/jkk.v4i2.89).
- Harrington, S.M & Dudley, E.G. 2017. *EAEC adhesins and colonization mechanisms*. In J. P. Nataro & R. S. Guerrant (Eds.), *Enteropathogenic Escherichia coli* (pp. 25-42). Springer.
- Hasriyanti. 2013. Kesesuaian Lahan Wisata Pantai Melalui Parameter Oseanografi Fisika di Pulau Samalona Makassar Sulawesi Selatan. Jurusan Geografi Fakultas Matematika dan Ilmu Pengetahuan Alam. Universitas Negeri Makassar
- Hijrayanti, S., Bulan, D.E & Nurfadilah. 2022. Analisis Bakteri *Escherichia coli* di Perairan dan Sedimen Laut di Pulau Miang Besar Kecamatan Sangkulirang Kabupaten Kutai Timur. *Jurnal Aquarine* vol. 9, no. 1:38-43.
- Hooshyari, G. 2017. *Evaluating Filter Materials for E. coli Removal from Stormwater. Electronic Theses and Dissertations*. 1206
- Jayanti, D. D., Susanti, R., Yuniaستuti, A & Suardana, I. W. Deteksi *Escherichia coli* O157 pada air minum di Kelurahan Sekaran Gunungpati Semarang. *Jurnal Biologi Udayana*, vol. 24, no. 2: 55-62
- Ilyas, F.A. 2023. Studi Keberadaan Bakteri *Escherichia coli* Pada Perairan Wisata Pantai Biru dan Pantai Akkarena, Kota Makassar. Skripsi. Universitas Hasanuddin
- Khakim, L & Rini, C.S. 2018. Identifikasi *Escherichia coli* dan *Salmonella* sp. pada Air Kolam Renang Candi Pari. *Journal of Medical Laboratory Science/Technology* vol. 1, no. 2:84-93
- Kim, M., Lee, J.Y & Oh, K.H. 2016. *Effects of dissolved oxygen on the growth, plasmid stability, and recombinant protein production in Escherichia coli*. *Journal of Microbiology and Biotechnology*, vol. 26,no. 9:1585-1591 (xiao li)
- Kusuma, E.A., Rasyid, R & Endrinaldi. 2015. Identifikasi Bakteri *Coliform* pada Air Kobokan di Rumah Makan Kelurahan Andalas Kecamatan Padang Timur. *Jurnal Kesehatan Andalas* vol. 4, no.3.
- Kusumaningrum, H.D., Riboldi, G., Hazeleger, W.C & Beumer, R.R. 2004. *Survival of foodborne pathogens on stainless steel surfaces and cross-contamination to foods*. *International Journal of Food Microbiology*, vol. 85,no. 3:227-236.
- Krieg, N.R. 2015. *Escherichia coli and Salmonella: Cellular and Molecular Biology* (2nd ed.). Washington, DC: ASM Press
- Krisnamurti, G.C. 2017. Penghitungan jumlah sel bakteri dengan Metode Most Probable Number (MPN). Prosiding Seminar Nasional Simbiosis II, September, 329-341. <http://prosiding.unipma.ac.id/index.php/simbiosis/article/download/348/331>
- Okeke, I.N., Nataro, J.P & Blaser, M.J. 2010. *Molecular epidemiology of Escherichia coli*. In *Escherichia coli* (pp. 45-58). Springer, Boston, MA. doi: [10.1007/978-1-4419-0475-4_3](https://doi.org/10.1007/978-1-4419-0475-4_3)
- Leboffe, M. J & Pierce, B. E. 2011. *A Photographic Atlas for the Microbiology Laboratory*, 4th ed. Morton. San Diego.

- Levine, M. 1918. *Differentiation of B. Coli and B. Aerogenes on a Simplified Eosin-Methylene Blue Agar*. *The Journal of Infectious Diseases* vol. 1, no. 23:43-47
- Li, X., Robbins, J.W Jr & Taylor, K.B. 1992. *Effect of the levels of dissolved oxygen on the expression of recombinant proteins in four recombinant Escherichia coli strains.* *Journal Ind Microbiol.* Jan;9(1):1-9. doi: 10.1007/BF01576362. PMID: 1367973
- Liao, X., Zhang, J., Yang, L & Zhou, S. 2021. *Impact of environmental stressors on Escherichia coli growth, metabolism, and survival: an update review*. *Environmental science and pollution research international*, vol. 28,no. 3:2533-2548. doi: 10.1007/s11356-020-11022-6
- Lues, J., Theron, M & Venter, P. 2005. *The effect of salt and pH on the survival and growth of Escherichia coli O157:H7 in vitro*. *Journal of Food Safety*, vol. 25,no. 1:27-37.
- Madigan, M.T., Martinko, J.M., Stahl, D.A & Clark, D.P. 2012. *Biology of Microorganisms*. Pearson Education. San Fransisco
- McCrady, M.H. 1937. *A Practical Study of Procedures for the Detection of the Presence of Coliform Organisms in Water* . *American Journal of Public Health and the Nations Health* vol. 27 no. 12:1243–1258. doi:10.2105/ajph.27.12.1243
- Moe, C., Sobsey, M., Samsa, G & Mesolo, V. 1991. Bacterial Indicators of Risk of Diarrheal Disease from Drinking-water in the Philippines. *Bulletin of the World Health Organization* no. 69:305
- Molina, N., Medina, A.M & Lopman, B.A. 2016. *Etiology of acute gastroenteritis in Latin America. Clinical microbiology and infection*, vol. 22,no. 9:801-809.
- Paendong, S.M. 2004. Analisis Kandungan Bakteri *Escherichia coli* Di Pesisir Pantai Malalayang Kota Manado. Retrieved from <http://fkm.unsrat.ac.id/wp-content/uploads/2012/10/Sarini-Paendong.pdf>
- Park, H & Wood, TK. 2018. *Single-cell analysis reveals that stochasticity and parS/parB sistem are key faktors for persistence of E. coli cells in biofilms*. *PloS one*, vol. 13,no. 1, e0190424.
- Prasetya, Y.A., Winarsih, I.Y., Pratiwi, K.A., Hartono, M.C & Rochimah, D.N. 2019. Deteksi Fenotipik *Escherichia coli* Penghasil Extended Spectrum Beta-lactamases (ESBLs) pada Sampel Makanan di Krian Sidoarjo. *Life Science*, vol. 8,no. 1:95–105. <https://doi.org/10.15294/lifesci.v8i1.29995>
- Perini, L., Quero, G. M., Serrano García, E., & Luna, G. M. (2015). *Distribution of Escherichia coli in a coastal lagoon (Venice, Italy): Temporal patterns, genetic diversity and the role of tidal forcing*. *Water Research*, 87, 155–165. doi:10.1016/j.watres.2015.09.021
- Puspita, I., Qurrotul, N.A., Sumarsono, T & Andini, A. 2020. Uji Sensitivitas *Escherichia coli* yang Diisolasi dari Air Sumur Galian Dekat dengan Septic Tank Terhadap Ciprofloxacin. *Nasional Conference for Ummah*.
- Qadri, F., Ahmed, T., Ahmed, F., Begum, Y., Saha, A., Brooks, A & Albert, M.J. 2015. *Reduced dose oral cholera vaccine, Shanchol™, in the prevention of acute*

- watery diarrhoea in Bangladeshi children: a cluster randomized controlled trial.* *The Lancet*, vol. 386,no. 10008:1362-1369.
- Rahayu, W.P., Nurjanah, S & Komalasari, E. 2018. *Escherichia coli: Patogenitas, Analisis, dan Kajian Risiko.* *Journal of Chemical Information and Modeling*, vol. 53,no. 9:5.
- Ramalingam, K. 2020. *Effect of pH on the growth of Escherichia coli ATCC 25922 and Staphylococcus aureus ATCC 25923 in home-made orange and grape juices.* *Journal of Food Science and Technology*, vol. 57,no. 7, 2459-2466. doi: 10.1007/s13197-020-04337-5
- Rompas, T.M., Chen, R.W & Polii, J.B. 2001. Analisis Kandungan *E. coli* Dan Total *Coliform* Kualitas Air Baku dan Air Bersih PAM Manado dalam Menunjang Kota Manado yang Berwawasan Lingkungan. *Jurnal Air Indonesia*.
- Rongre, A.J.P., Joseph, W.B & Pinontoan, O.R. 2019. Kandungan *Escherichia Coli* dan Kondisi Fisik Sumur Gali di Kelurahan Kakaskasen Iii Lingkungan Iii Kecamatan Tomohon Utara Kota Tomohon. *Jurnal KESMAS*, vol. 7,no. 4.
- Russell, T.L., Yamahara, K.M., Boehm, A.B & Kudela, R.M. 2013. *Linking microbial and environmental variability to changes in nearshore bacterioplankton communities.* *FEMS microbiology ecology*, vol. 84,no. 3, 536-547. doi: 10.1111/1574-6941.12081
- Sabar, M & Inayah. 2018. Analisis Kandungan Bahan Organik dan Bakteri Patogen (*E. coli*) di Pelabuhan Bastiong dan Pantai Kayu Merah Kota Ternate. *Jurnal Techno* vol. 5, no. 1:64-75
- Saier, M.H.J. 2000. *Families of transmembrane sugar transport proteins.* *Molecular Microbiology*, vol. 35,no. 4:699-710.
- Salyers, A & Whitt, D. 2002. *Bacterial Pathogenesis: A Molecular Approach.* 2ndEd. Washington DC: ASM Press.
- Saridewi,. Inggit., Pambudi., Arief., Ningrum & Yulia. 2017. Analisis Bakteri *Escherichia Coli* pada Makanan Siap Saji di Kantin Rumah Sakit X Dan Kantin Rumah Sakit Y. *BIOMA*, vol. 12,no. 90:10.21009/Bioma12(2).4.
- Setyati, W.A. Pringgenies D, Pamungkas DBP, Suryono CA, 2022. Monitoring Bakteri *Coliform* pada Pasir Pantai dan Air Laut di Wisata Pantai Marina dan Pantai Baruna. *Jurnal Kelautan Tropis.* Vol. 25, no. 1:113-120.
- Shi, C., Zhu, X., Wang, X & Chen, C. 2020. *Effect of pH on growth, physiological and biochemical characteristics of Escherichia coli.* *Journal of food science and technology*, vol. 57,no. 3:1012-1020.
- Shiomi, D., Mori, H & Niki, H. 2009. *Genetic Mechanism Regulating Bacterial Cell Shape and Metabolism.* *Communicative & Integrative Biology* vol. 2, no. 3:219-220. doi: 10.4161/cib.2.3.7930.
- Wagner, E.A & Monfort, W.F. 1920. *Lactose Broth For Isolating Bacterium Coli From Water.* *The American Journal of Public Health* vol: 11, no. 3:203-208. doi: 10.2105/ajph.11.3.203.

Yuspita, E., Putra, I., Suteja & Yulianto. 2017. Bahan Organik Total dan Kelimpahan Bakteri di Perairan Teluk Benoa, Bali. *Journal of Marine and Aquatic Sciences*. vol. 4, no. 129. 10.24843/jmas.2018.v4.i01.129-140

Zainun, Z & Simbolon, K. 2012. Analisis Total *Coliform*, *Faecal coliform*, *Eischerichia Coli* dan *Salmonella* di Daerah Aliran Sungai Citarum. *BuletinTeknik Litkayasa Akuakultur*:59–62. Retrieved from <http://ejurnal-balitbang.kkp.go.id/index.php/btla/article/view/2708/2213>

LAMPIRAN

Lampiran 1. Tabel MPN dengan tingkat kepercayaan 95% untuk berbagai kombinasi 3 seri tabung pengenceran

Tab positif			MPN	Tk kepercayaan	
10⁻¹	10⁻²	10⁻³		Bawah	Atas
0	0	0	<3,0	-	9,5
0	0	1	3,0	0,15	9,6
0	1	0	3,0	0,15	11
0	1	1	6,1	1,2	18
0	2	0	6,2	1,2	18
0	3	0	9,4	3,6	38
1	0	0	3,6	0,17	18
1	0	1	7,2	1,3	18
1	0	2	11	3,6	38
1	1	0	7,4	1,3	20
1	1	1	11	3,6	38
1	2	0	11	3,6	42
1	2	1	15	4,5	42
1	3	0	16	4,5	42
2	0	0	9,2	1,4	38
2	0	1	14	3,6	42
2	0	2	20	4,5	42
2	1	0	15	3,7	42
2	1	1	20	4,5	42
2	1	2	27	8,7	94
2	2	0	21	4,5	42
2	2	1	28	8,7	94
2	2	2	35	8,7	94
2	3	0	29	8,7	94
2	3	1	36	8,7	94
3	0	0	23	4,6	94
3	0	1	38	8,7	110
3	0	2	64	17	180
3	1	0	43	9	180
3	1	1	74	17	200
3	1	2	120	37	420
3	1	3	160	40	420
3	2	0	93	18	420
3	2	1	150	37	420
3	2	2	210	40	430
3	2	3	290	90	1000
3	3	0	240	42	1000
3	3	1	460	90	2000
3	3	2	1100	180	4100
3	3	3	>1100	420	--

Lampiran 2. Data Kandungan Bakteri *E. coli* di perairan Pulau Samalona

Stasiun	Titik	Tabung Positif			MPN/100 mL	Rerata	SD
		10^{-1}	10^{-2}	10^{-3}			
1	1	3	3	2	1100	1289	811
	2	3	3	3	2400		
	3	3	3	1	460		
	4	3	3	1	460		
	5	3	3	2	1100		
	6	3	3	3	2400		
	7	3	3	2	1100		
2	1	3	3	1	460	1166	904
	2	3	3	3	2400		
	3	3	3	3	2400		
	4	3	3	2	1100		
	5	3	3	0	240		
	6	3	3	1	460		
	7	3	3	2	1100		

Lampiran 3. Data Parameter Oseanografi Pulau Samalona

Stasiun	Titik	Salinitas	Suhu	pH	BOT	DO	Kecepatan Arus
1	1	29	30.1	8	15.17	5.07	0.0826
	2	31	29.6	7.8	61.94	4.37	0.2041
	3	31	29.6	8	22.12	4.65	0.2564
	4	30	29.5	7.8	24.02	4.37	0.1852
	5	29	29.6	7.7	41.71	5.7	0.1515
	6	31	29.7	8	66.36	4.6	0.1316
	7	30	29.8	7.8	61.30	4.67	0.0901
rerata		30.14	29.7	7.87	41.80	4.78	0.1574
2	1	32	29.8	7.8	18.96	4.78	0.1471
	2	33	29.7	7.9	69.52	4.74	0.1695
	3	32	30.1	7.8	33.50	4.6	0.1538
	4	30	29.1	7.8	34.76	4.4	0.0943
	5	33	29.7	7.8	11.38	4.54	0.1124

	6	33	30.1	7.9	13.27	4.54	0.1563
	7	31	30.4	7.9	17.70	5.39	0.1136
rerata		32	29.84	7.84	28.44	4.71	0.1353

Lampiran 4. Uji normalitas sebagai syarat uji T kelimpahan bakteri *E. coli* pada stasiun 1 dan 2 pada Pulau Samalona

Tests of Normality

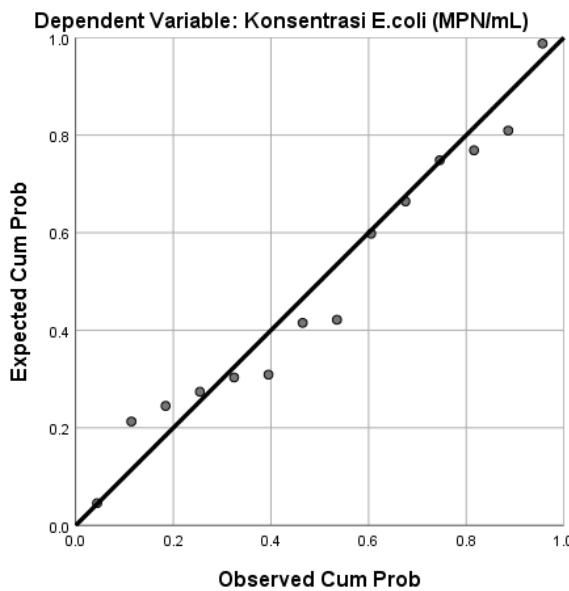
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
stasiun1	.306	7	.046	.817	7	.060
stasiun2	.243	7	.200*	.835	7	.089

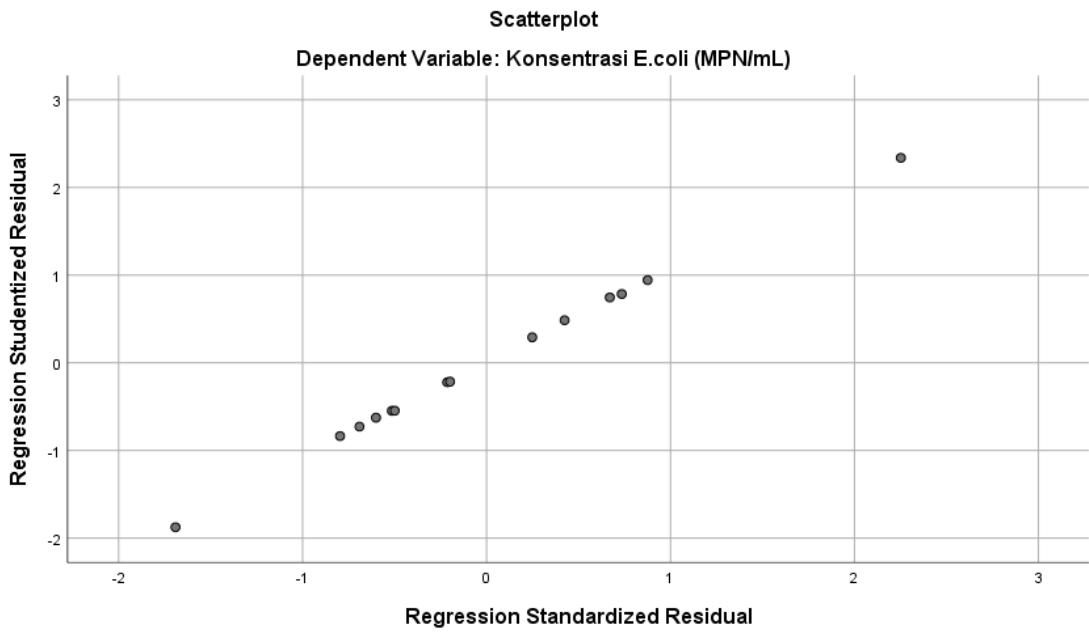
*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Lampiran 5. Normal P-Plot dan Scatterplot heteroskedastisitas

Normal P-P Plot of Regression Standardized Residual





Lampiran 6. Pembuatan Medium Pertumbuhan Bakteri



Lampiran 7. Pengenceran



Lampiran 8. Inokulasi ke Media *Lactose Broth*



Lampiran 9. Inokulasi bakteri dari Media LB ke media BGLB



Lampiran 10. Inokulasi Bakteri dari Media BGLB ke EMBA



Lampiran 11. Koloni bakteri *E. coli* yang tumbuh pada medium EMBA memiliki karakteristik berwarna hijau metalik

