DAFTAR PUSTAKA

Abeer Fauzi Al-Rubaye, Imad Hadi Hameed, Mohanad Jawad Kadhim. (2017). A Review: Uses of gas chromatography-mass spectrometry (GCMS) technique for analysis of bioactive natural compounds of some plants. *International Journal of Toxicological and Pharmacological Research*, 9(1), 81-85. ISSN: 0975-5160.

Adhikari, M., & Singh, S. (2020). Steroids: A Comprehensive Review of Their Biosynthesis, Pharmacology, and Therapeutic Applications. Elsevier.

Adnan, M., Chy, M. N. U., Kamal, A. T. M. M., Chowdhury, K. A. A., Rahman, M. A., Ali Reza, A. S. M., Moniruzzaman, M., Rony, S. R., Nasrin, M. S., Azad, M. O. K., Park, C. H., Lim, Y. S., & Cho, D. H. (2020). Intervention in neuropsychiatric disorders by suppressing inflammatory and oxidative stress signal and exploration of in silico studies for potential lead compounds from *Holigarna caustica* (Dennst.) Oken leaves. *Biomolecules*, 10(4), 1–29. https://doi.org/10.3390/biom10040561

Alebiosu, C. O., & Yusuf, A. J. (2015). Phytochemical Screening, Thin-layer Chromatographic Studies and UV Analysis of Extracts of *Citrullus lanatus*. *Journal of Pharmaceutical, Chemical and Biological Sciences*, 3(2), 214–220.

Al-Rubaye, A. F., Hameed, I. H., & Khadim, M. J. (2017). A Review: Uses of gas chromatography-mass spectrometry (GC MS) technique for analysis of bioactive natural compounds of some Plants. *International Journal of Toxicological and Pharmacological Research*, 9(1), 81-85. ISSN: 0975-5160.

Arum, M., Wahyuningsih, S., & Amin, R. (2022). Uji Efektivitas Patch Transdermal Ekstrak Etanol Kulit Batang Kayu Jawa (*Lannea coromandelica* (Houtt.) Merr) Terhadap Luka Sayat Pada Tikus Putih Jantan (*Rattus Norvegicus*). *Jurnal Multidisiplin Madani*, 2(2), 1001-1018.

Astuty, E., Syam, F., & Sari, S. R. (2019). Isolasi Bakteri Endofit dari Tanaman Kayu Jawa (*Lannea coromandelica* (Houtt.) Merr) dan Potensinya sebagai Antimikroba terhadap Beberapa Bakteri Patogen. *PHARMACY: Jurnal Farmasi Indonesia (Pharmaceutical Journal of Indonesia)*, 16(2), 199-208.

Bagus, I., Mantra, K., Nengah, I., Putra, K., Luh, D., Wrasiati, P., Pangan, T., & Pertanian, F. T. (2019). Characterization Of Bioactive Compound Of Sembung (*Blumea balsamifera* (L) Dc) Leaf Extract From Different Solvents. *Media Ilmiah Teknologi Pangan (Scientific Journal of Food Technology)*, 6(1), 54–65.

Bose, S., Gupta, V., Choudhary, R., & Nayak, P. (2020). Phytochemical and pharmacological properties of *Lannea coromandelica*: A review. *Journal of Ethnopharmacology*, 246, 112244. doi:10.1016/j.jep.2019.112244.

Buldani, A., Yulianti, R., & Soedomo, P. (2017). Uji efektivitas ekstrak Rimpang Bangle (*Zingiber Cassumunar* Roxb.) sebagai antibakteri terhadap *Vibrio cholerae* Dan *Staphylococcus aureus* secara In Vitro dengan metode difusi cakram. *2nd Seminar Nasional IPTEK Terapan (SENIT)* 2017, 15–17.

Cowan, M. (1999). Plant products as antimicrobial agents. Washington, DC: American Society for Microbiology.

Dahlgren, D. (2022). Principles and Applications of Thin Layer Chromatography. Boca Raton, Florida: CRC Press.

Dalming, T., Karim, A., & Nurlaela, N. (2018). Uji Daya Hambat Ekstrak Daun Tammate (*Lannea coromandelica*) Terhadap Bakteri *Propionibacterium acnes* Dan *Escherichia coli*. *Media Farmasi*, 14(2), 59. https://doi.org/10.32382/mf.v14i2.598

Dalimunthe, N. A. (2020). Analisis kadar metamfetamin dalam rambut pengguna sabu-sabu menggunakan metode kolom ekstraksi dengan nanobentonit alam sebagai adsorben dan Gas Chromatography Mass Spectrometry (GC MS) (Vol. 2). Disertasi, Universitas Sumatra Utara.

De Moraes, J., de Oliveira, R. N., Costa, J. P., Junior, A. L. G., de Sousa, D. P., Freitas, R. M., et al. (2014). Phytol, a Diterpene Alcohol from Chlorophyll, as a Drug against Neglected Tropical Disease Schistosomiasis Mansoni. *PLoS Negl Trop Dis*, 8(1): e2617. https://doi.org/10.1371/journal.pntd.0002617

Dustin L Abbott, Jennifer F Limoges, Kelly J Virkler, Seth J Tracy, Gregory G Sarris. (2021). ELISA screens for fentanyl in urine are susceptible to false-positives in high concentration methamphetamine samples. *Journal of Analytical Toxicology*. https://doi.org/10.1093/jat/bkab033

Fadliah, S., Mu'nisa, A., & Rachmawaty. (2018). Analisis Fitokimia Air Rebusan Daun Kayu Jawa (*Lannea coromandelica*). *Bionature*, 19(1).

Ghosh, S. K., & Chakraborty, M. (2016). Alkaloids: Properties, Applications and Health Benefits. Nova Science Publishers.

Gonzalez-Rivera, M.L., Barragan-Galvez, J.C., Gasca-Martínez, D., Hidalgo-Figueroa, S., Isiordia-Espinoza, M., Alonso-Castro, A. J. (2023). Neuropharmacological Effects of Neophytadiene. *Molecules*, 28, 3457. https://doi.org/10.3390/molecules28083457

Goto, T. (2020). Airway microbiota as a modulator of lung cancer. *International Journal of Molecular Sciences*, 21(9). https://doi.org/10.3390/ijms21093044

Gunjal, J. N., Patil, M. S., & Chittam, K. P. (2021). *Lannea coromandelica*: An Overview. *International Journal of Pharmaceutical and Biological Science Archive*, 9(1), 102–107. https://doi.org/10.32553/ijpba.v9i1.181

Guo, J., Li, Z., Huang, K., Li, Y., & Wang, J. (2017). Morphology analysis of *Escherichia coli* treated with nonthermal plasma. *Journal of Applied Microbiology*, 122(1), 87–96. https://doi.org/10.1111/jam.13335

Harborne, J. B. (1998). *Phytochemical Methods: A Guide to Modern Techniques of Plant Analysis* (3rd ed.). Springer.

Hussain, S., Joo, J., Kang, J., Kim, B., Braun, G. B., She, Z. G., Kim, D., Mann, A. P., Mölder, T., Teesalu, T., Carnazza, S., Guglielmino, S., Sailor, M. J., & Ruoslahti, E. (2018). Antibiotic-loaded nanoparticles targeted to the site of infection enhance antibacterial efficacy. *Nature Biomedical Engineering*, 2(2), 95–103. https://doi.org/10.1038/s41551-017-0187-5

Imam, M. Z., & Moniruzzaman, M. (2014). Antinociceptive and Anti-inflammatory Activities of *Lannea coromandelica* in Mice. *Journal of Ethnopharmacology*, 154(1), 45-54. doi:10.1016/j.jep.2014.03.036.

Islam, F., Mitra, S., Nafady, M. H., Rahman, M. T., Tirth, V., Akter, A., Emran,T. Bin, Mohamed, A. A. R., Algahtani, A., & El-Kholy, S. S. (2022). Neuropharmacological and Antidiabetic Potential of *Lannea coromandelica* (Houtt.) Merr. Leaves Extract: An Experimental Analysis. *Evidence-Based Complementary and Alternative Medicine*, *2022*. https://doi.org/10.1155/2022/6144733

Ishnava, K. B., & Konar, P. S. (2020). In vitro anthelmintic activity and phytochemical characterization of Corallocarpus epigaeus (Rottler) Hook. f. tuber from ethyl acetate extracts. *Bulletin of the National Research Centre*, *44*(1), 1–10. https://doi.org/10.1186/s42269-020-00286-z

Jeong, S.H (2018). Inhibitory effect of phytol on cellular senescence. *biomed dermatol* 2, 13. https://doi.org/10.1186/s41702-018-0025-8

Kumar, R., & Verma, S. (2021). *Lannea coromandelica* (Houtt.) Merr: An Overview of Its Pharmacological Potential. *International Journal of Pharmacognosy and Phytochemical Research*, 13(2), 58-67.

Lallo, S., Hasma, Sartini, Aswad, M. (2020). Leaf Position Affects Antibacterial Activity Of Spondias Pinnata And Its Secondary Metabolite. *Asian Journal Of Plant Sciences*, *19*(2), 185–190. https://Doi.Org/10.3923/Ajps.2020.185.190

Ledingham, K. (2019). Using a cultural contexts of health approach to address the challenge of antibiotic resistance. *European Journal of Public Health*, *29*(Supplement_4). https://doi.org/10.1093/eurpub/ckz185.797

Mann, J. (1992). *Secondary Metabolites*. Springer-Verlag.

Matsuo, Y., Nakano, Y., & Miyata, T. (2021). Analysis of bioactive compounds in medicinal plants using thin-layer chromatography and gas chromatography-mass spectrometry. *Journal of Chromatography B*, 1178, 122894. https://doi.org/10.1016/j.jchromb.2021.122894

Maya, S., & Ramesh, K. (2021). Essential Oils as Natural Antimicrobial Agents: A Review of Their Applications and Efficacy. *Journal of Essential Oil Research*, 33(3), 231-240. https://doi.org/10.1080/10412905.2021.1892321

National Institutes of Health (NIH), (2021). Health Information: https://ods.od.nih.gov/factsheets/VitaminE-HealthProfessional/ diakses pada tanggal 30-6-2024.

Nishida, K., Yoshida, N., & Sakamoto, T. (2018). GC-MS analysis of bioactive compounds in *Lannea coromandelica* (Houtt.) Merr. *Journal of Natural Products*, 81(8), 2128-2136. doi:10.1021/acs.jnatprod.8b00223.

Pagarra, H., Sahribulan, S. (2022). Analisis Fitokimia dan Pengaruh Ekstrak Etanol Daun Kayu Jawa (*Lannea coromandelica*) terhadap Pertumbuhan Bakteri Staphylococcus aureus. *Sainsmat : Jurnal Ilmiah Ilmu Pengetahuan Alam*, *11*(2), 135. https://doi.org/10.35580/sainsmat112366392022

Pinto, C., Pereira, E., & Silva, F. (2022). The role of terpenes in the treatment of fungal infections. *Journal of Antimicrobial Chemotherapy*, 77(2), 358-369. https://doi.org/10.1093/jac/dkab372

Permata, D. A., Alfi Asben. (2017) Karakteristik Dan Senyawa Bioaktif Ekstrak Kering Daun Kluwih Dari Posisi Daun Yang Berbeda. *Jurnal Teknologi Pertanian Andalas*. Vol. 21, No.2 https://tpa.fateta.unand.ac.id/index.php/JTPA/article/view/77/81

Raut, J. S., & Karuppayil, S. M. (2014). A status review on the medicinal properties of *Lannea coromandelica*. *Journal of Pharmaceutical Research International*, 4(1), 18-32.

Reygaert, C. W. (2018). An overview of the antimicrobial resistance mechanisms of bacteria. *AIMS Microbiology*, *4*(3), 482–501. https://doi.org/10.3934/microbiol.2018.3.482

Robinson, T. (1963). *The Organic Constituents of Higher Plants: Their Chemistry and Interrelationships.* Minneapolis: Burgess Publishing Company.

Rollando, R., Warsito, W., Masruri, M., & Widodo, W. (2021). Sterculia foetida leaf fraction against matrix metalloproteinase-9 protein and 4T1 breast cancer cells: In-vitro and in-silico studies. *Tropical Journal of Natural Product Research*, *5*(1), 113–121. https://doi.org/10.26538/tjnpr/v5i1.15

Sahu, A. K., & Singh, M. (2020). Thin layer chromatography for separation and characterization of phytochemical compounds. *Current Drug Research*, 4(1), 39-52. doi:10.1111/2042-6720.12252.

Setyorini, A., Kurniatri, A. A., Setyorini, H. A., Adelina, R., (2016) Karakterisasi Mutu Ekstrak Daun Sirsak (Annona muricata L.) dari

Tiga Tempat Tumbuh . *Buletin Penelitian Kesehatan,* Vol. 44 (4). https://media.neliti.com/media/publications-test/67859

Selvaraj, D., Kotapadu, A., Sampurna, B., Ann Abraham, A., Kumar Kesavan, S., Krishnan, C. (2015). Detection Of Active Constituents From The Leaf Extract Of *Lannea coromandelica* By Gc-Ms Testing And Assessment Of Its Pharmacological Activity. *International Journal Of Pharmaceutical Sciences And Research*, *6*(3), 1217–1221. Https://Doi.Org/10.13040/IJPSR.0975-8232.6(3).1217-21

Siddiqui, M. F., & Khan, M. I. (2015). *Phenolic Compounds: Natural Sources, Extraction and Pharmacological Activities*. CRC Press.

Silva, V., Capelo, J. L., Igrejas, G., & Poeta, P. (2020). Molecular epidemiology of *Staphylococcus aureus* lineages in wild animals in europe: A review. *Antibiotics*, *9*(3), 1–28. https://doi.org/10.3390/antibiotics9030122

Sharma, S., & Negi, T. (2018). A Review on Thin Layer Chromatography and Its Applications in Phytochemical Analysis. *Journal of Chromatographic Science*, 56(7), 653-663. doi:10.1093/chromsci/bmy046.

Sofowora, A. (1993). *Medicinal Plants and Traditional Medicine in Africa*. Spectrum Books.

Sparkman, O.D., Penton, Z., Fulton, G., 2011, Gas chromatography and mass spectrometry : a practical guide, Elsevier

Swathi, S., Lakshman, K. (2022). Phytochemistry And Pharmacological Bio-Activities Of *Lannea Coromandelica*: A Review. Innovare Journal Of Medicinal Sciences. Vol. 10 (5), 1-6. https://doi.org/10.22159/ijms.2022.v10i5.45853

Thakur, M., Kumar, P., & Kaur, M. (2017). Phytochemical and pharmacological properties of *Lannea coromandelica*. *International Journal of Pharmacology and Pharmaceutical Sciences*, 4(2), 101-115.

Ungurianu, A., Zanfirescu, A., Nitulescu,G., & Margina, D (2021). Vitamin E Beyond Its Antioxidant Label. *Antioxidants* , *10*, 634. https://doi.org/10.3390/antiox10050634

Venkatesham, A., Vasantha, G., Dayakar, C. (2020). Hypolipidemic Activity Of *Lannea Coromandelica* Houtt. Leaves In Triton X-100 Induced Hyperlipidemic Rats. *Indian Journal Of Pharmacy And Pharmacology*, *5*(4), 207–210. Https://Doi.Org/10.18231/2393-9087.2018.0043

Verma, M., & Verma, A. (2021). Use of Gas Chromatography-Mass Spectrometry in Analyzing Bioactive Compounds in Medicinal Plants. *Medicinal Chemistry Research*, 30(4), 560-568. doi:10.1007/s00044-020-02620-8.

Wang, Y., Chen, W., & Li, H. (2018). A Review on GC-MS Analysis of Volatile Compounds from Medicinal Plants. *Journal of Chromatographic Science*, 56(4), 401-411. doi:10.1093/chromsci/bmx049.

Yadav, S. K., & Singh, D. (2020). Phytochemical and Pharmacological Studies of *Lannea coromandelica*: A Review. *Pharmacognosy Journal*, 12(5), 1055-1064. doi:10.5530/pj.2020.5.157.

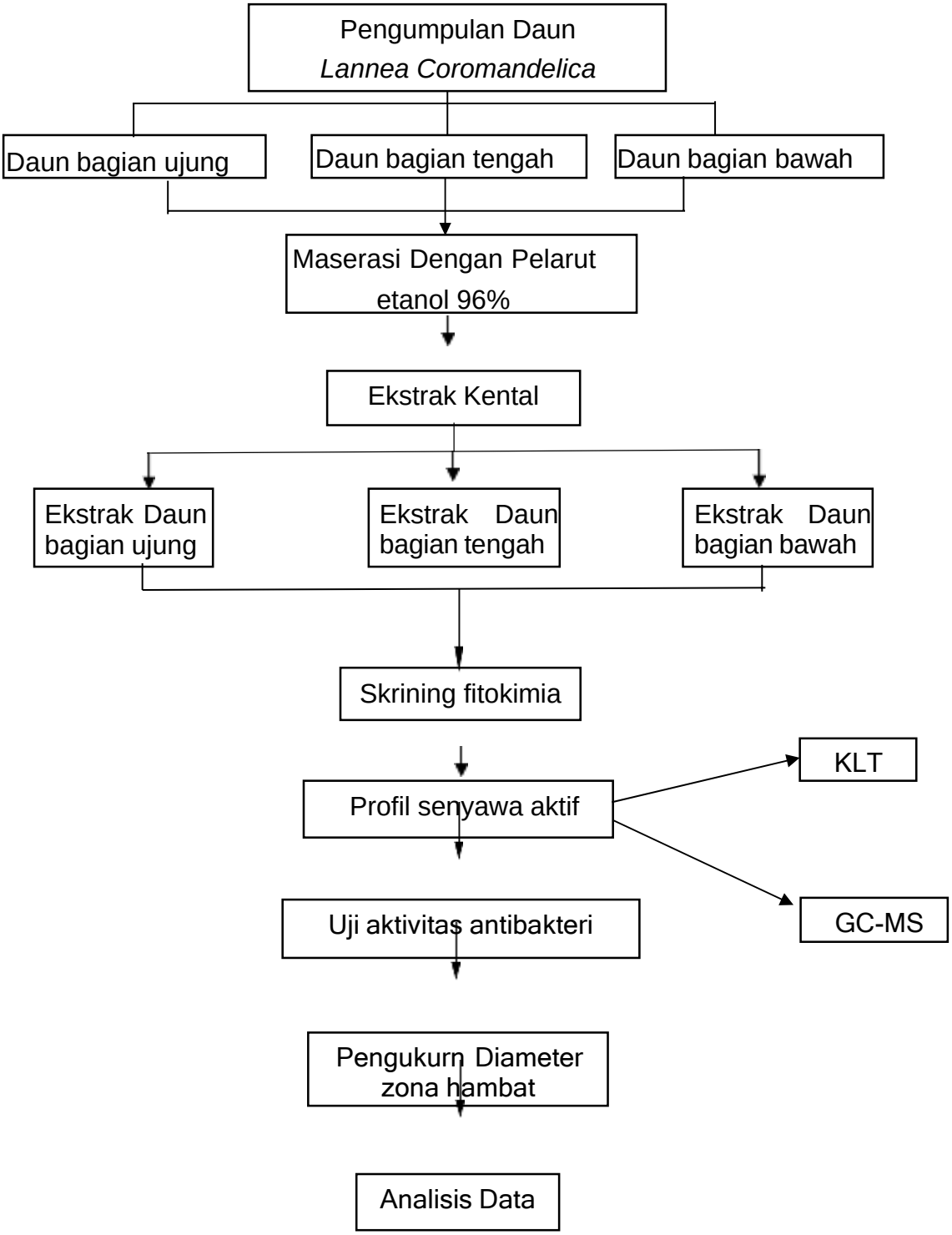
Zahara, Meutia & Suryady (2023), DESKRIPSI *Lannea coromandelica* Houtt. Merrill. SEBAGAI TUMBUHAN OBAT : REVIEW, *Jurnal Biosainsdik, 3(1)*, 287-293

Zhou, Q. L., Tan, Z. H., Wang, H. X., Chen, D. J., Ke, X. R., Zhu, Z. X., & Wang, H. F. (2021). The complete plastome of a cultivar of *Lannea coromandelica*. *Mitochondrial DNA Part B: Resources*, *6*(12), 3386–3387. https://doi.org/10.1080/23802359.2021.1998803

Zweig, G., & Sherma, J. (2020). *Chromatographic Science Series.* Boca Raton, Florida, AS: CRC Press.

LAMPIRAN

Lampiran 1. Skema kerja



Lampiran 2. Hasil analisis GC-MS

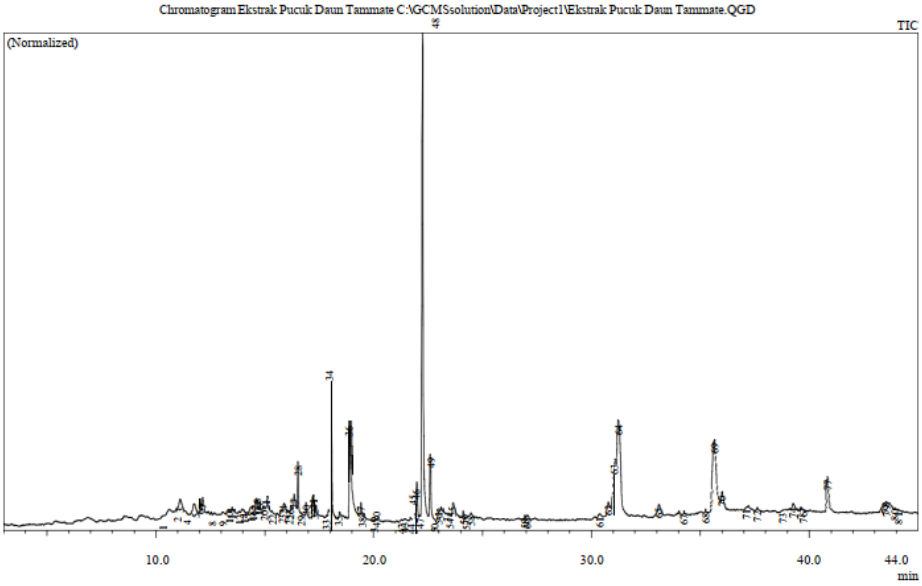
a. Ekstrak ujung

DATA REPORT GCMS-QP2010 ULTRA SHIMADZU

Sample Information

Analyzed by	: Admin
Analyzed	: 17/12/2031 8:05:48 AM
Sample Type	: Unknown
Level #	: 1
Sample Name	: Ekstrak Pucuk Daun Tammate
Sample ID	: Ekstrak Pucuk Daun Tammate
IS Amount	: [1]=1
Sample Amount	: 1

Chromatogram Ekstrak Pucuk Daun Tammate C:\GCMSsolution\Data\Project1\Ekstrak Pucuk Daun Tammate.QGD



Peak Report TIC

Peak#	R.Time	Area	Area%	A/H	Name
1	10.292	58669	0.10	7.63	2-Methyl-1-methylmannopyranoside
2	10.950	142906	0.24	5.93	.alpha.-L-Galactopyranoside, methyl 6-deoxy-
3	11.113	978086	1.66	12.33	1,5-Anhydro-d-altritol
4	11.375	20000	0.03	3.51	Methyl (1-acetyl-2-piperidinyl)(phenyl)acetate #
5	11.763	604628	1.03	10.22	Ethylvinyl sulfide
6	12.022	299355	0.51	3.84	Dodecane, 1-chloro-
7	12.148	484225	0.82	5.28	1-Dodecanol (CAS)
8	12.540	50024	0.09	3.14	2,4-Di-tert-butylphenol
9	13.042	87620	0.15	7.84	2(4H)-Benzofuranone, 5,6,7,7a-tetrahydro-4,4,7a-trimethyl-, (R)-
10	13.343	162282	0.28	7.46	1,6-Anhydro-.beta.-D-glucopyranose (levoglucosan)
11	13.501	161223	0.27	4.83	4-(2'-Methyl-3'-oxocyclohexyl)butanal
12	13.812	46049	0.08	3.70	CYCLOOCTASILOXANE, HEXADECAMETHYL-
13	13.969	145417	0.25	5.90	5-Hepten-3-yn-2-ol, 6-methyl-5-(1-methylethyl)-
14	14.042	59083	0.10	3.34	5-Isopropenyl-2-methyl-7-oxabicyclo[4.1.0]heptan-2-ol
15	14.342	270861	0.46	8.19	.beta.-D-Glucopyranoside, methyl (CAS)
16	14.467	258330	0.44	6.33	1H-pyrazole, 5-(2-methylbicyclo[2.2.1]hept-5-en-2-yl)-
17	14.567	220164	0.37	2.93	Tetradecane, 1-chloro-
18	14.625	428845	0.73	4.87	Methyl tetradecyl ether
19	14.767	249274	0.42	3.52	Oxalic acid, cyclohexylmethyl tridecyl ester
20	14.940	329639	0.56	8.07	1-Methylheptyl trans-2,2-dimethyl-3-(2-methyl-1-propenyl)cyclopropanecarboxylate
21	15.104	705790	1.20	7.41	Heneicosanoic acid, methyl ester
22	15.333	73997	0.13	3.86	1-Dodecanol, ethoxy-
23	15.755	171045	0.29	5.19	TETRADECANOIC ACID
24	15.881	666479	1.13	9.57	6-Hydroxy-4,4,7a-trimethyl-5,6,7,7a-tetrahydrobenzofuran-2(4H)-one
25	16.083	186369	0.32	5.64	Muscone
26	16.204	442386	0.75	7.04	6-Hydroxy-4,4,7a-trimethyl-5,6,7,7a-tetrahydrobenzofuran-2(4H)-one

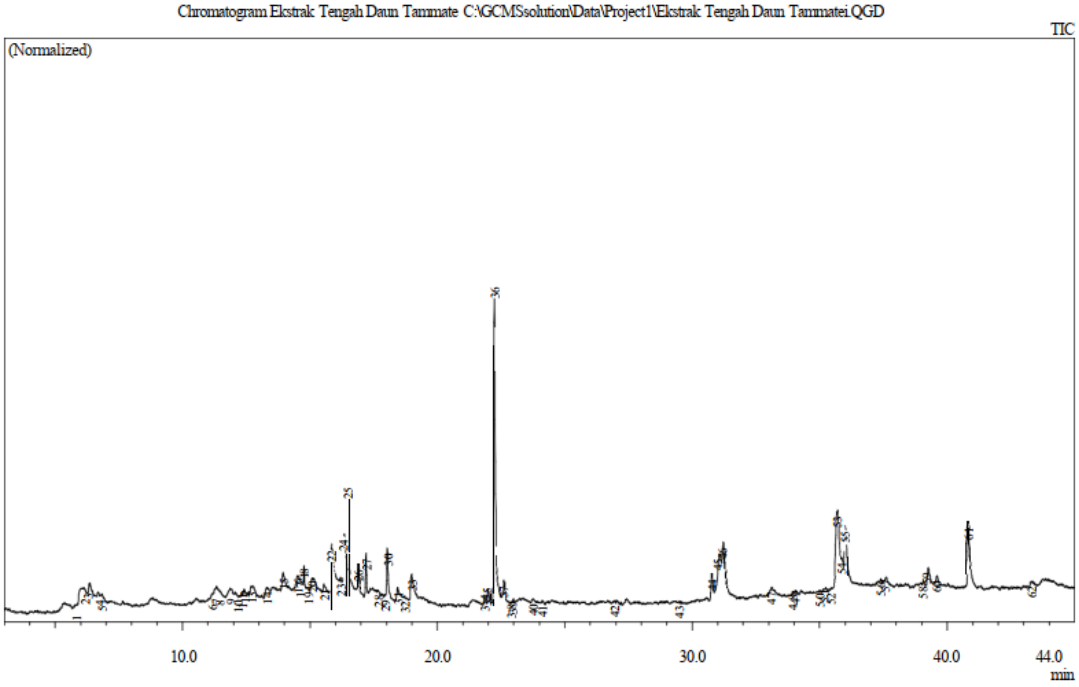
Peak#	R.Time	Area	Area%	A/H	Name
27	16.350	842066	1.43	6.62	Pluchidiol
28	16.521	1046293	1.78	3.35	Neophytadiene
29	16.658	164182	0.28	5.72	2-PENTADECANONE, 6,10,14-TRIMETHYL-
30	16.897	390217	0.66	4.55	Neophytadiene
31	17.201	356294	0.61	2.90	2-Hexadecen-1-ol, 3,7,11,15-tetramethyl-, [R-[R*,R*-(E)]]- (CAS)
32	17.324	205042	0.35	3.39	1-Hexadecanol
33	17.808	70224	0.12	6.74	9-Hexadecenoic acid, methyl ester, (Z)-
34	18.010	3514133	5.97	4.09	Hexadecanoic acid, methyl ester
35	18.435	148688	0.25	4.53	Isophytol
36	18.912	4175761	7.10	7.68	n-Hexadecanoic acid
37	19.416	454823	0.77	4.80	Hexadecanoic acid, ethyl ester
38	19.547	194986	0.33	5.49	DODECYLDIGLYCOL
39	20.090	38328	0.07	3.06	HEXADECANOIC ACID, 1-METHYLETHYL ESTER
40	20.209	105590	0.18	4.21	Heptadecanoic acid, methyl ester (CAS)
41	21.042	42407	0.07	4.54	10-Methylundecan-4-olide
42	21.258	112338	0.19	9.21	4-Oxazolecarboxylic acid, 4,5-dihydro-2-phenyl-, 1-methylethyl ester
43	21.408	184544	0.31	9.98	HEPTADECANOIC ACID
44	21.687	109394	0.19	4.62	n-Nonadecanol-1
45	21.826	744475	1.27	3.89	9,12-Octadecadienoic acid (Z,Z)-, methyl ester
46	21.980	893259	1.52	4.01	8,11,14-Docosatrienoic acid, methyl ester
47	22.108	144369	0.25	4.22	cis-13-Octadecenoic acid, methyl ester
48	22.243	11865195	20.17	4.32	2-HEXADECEN-1-OL, 3,7,11,15-TETRAMETHYL-, [R-[R*,R*-(E)]]-
49	22.595	1672709	2.84	4.50	Methyl stearate
50	22.783	290	0.00	0.26	Nigakilactone B
51	22.992	257878	0.44	4.95	2-Methyl-Z,Z-3,13-octadecadienol
52	23.099	790414	1.34	11.19	9-Octadecenoic acid, (E)-
53	23.383	182086	0.31	5.99	Linoleic acid ethyl ester
54	23.517	115644	0.20	5.27	Ethyl Oleate
55	23.647	717517	1.22	8.66	Octadecanoic acid
56	24.116	134426	0.23	3.39	Octadecanoic acid, ethyl ester
57	24.308	84423	0.14	8.73	1-Propanol, 3-(octadecyloxy)-
58	24.465	186256	0.32	6.37	Cyclopropaneoctanoic acid, 2-octyl-, methyl ester
59	26.943	93400	0.16	3.36	Eicosanoic acid, methyl ester (CAS)
60	27.067	207339	0.35	7.66	2-ETHYLHEXYL 3-(4-METHOXYPHENYL)-2-PROPENOATE
61	30.392	152720	0.26	8.07	4-Campestene-3-one
62	30.774	546771	0.93	6.80	Bis(2-ethylhexyl) phthalate
63	31.076	3362102	5.72	10.53	Lup-20(29)-en-3-one
64	31.243	5855113	9.95	10.99	Lup-20(29)-en-3-one
65	33.096	799188	1.36	11.49	Lupeol
66	34.025	130207	0.22	5.47	Tetracosanoic acid, methyl ester
67	34.255	98267	0.17	4.46	1,3-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester
68	35.245	62127	0.11	3.00	Squalene
69	35.665	4714195	8.01	11.68	.gamma.-Sitostenone
70	36.004	808602	1.37	7.70	.alpha.-Tocospiro B
71	37.209	274501	0.47	10.88	Cholesta-4,6-dien-3-one
72	37.620	132558	0.23	6.85	Ergosta-5,7,9(11),22-tetraen-3-ol, (3.beta.,22E)-
73	38.792	473792	0.81	29.44	Phosphetane, 2,2,3,4,4-pentamethyl-1-phenoxy-, 1-oxide
74	39.265	536764	0.91	10.97	.beta.-Tocopherol
75	39.623	200446	0.34	7.25	CHOLESTA-4,6-DIEN-3-OL, BENZOATE, (3.BETA.)-
76	39.792	23726	0.04	2.53	4-Aminosalicylic acid, 3TMS derivative
77	40.861	1284843	2.18	6.57	dl-.alpha.-Tocopherol
78	43.538	989837	1.68	16.46	Cholest-4-ene-3,6-dione
79	43.642	547914	0.93	10.85	Silane, diethyldi(4-acetylphenoxy)-
80	43.942	186786	0.32	8.20	Cholest-6-one, 3-chloro-
81	44.175	89729	0.15	11.60	3,4-Dimethyl-4-methlene-3,4-secocholest-5-en-3-one
		58817924	100.00		

b. Ekstrak bagian tengah

Sample Information

Analyzed by	: Admin
Analyzed	: 17/12/2031 7:03:09 AM
Sample Type	: Unknown
Level #	1
Sample Name	: Ekstrak Tengah Daun Tammate
Sample ID	: Ekstrak Tengah Daun Tammate
IS Amount	: [1]=1
Sample Amount	1

Chromatogram Ekstrak Tengah Daun Tammate C:\GCMSsolution\Data\Project1\Ekstrak Tengah Daun Tammatei.QGD



Peak Report TIC

Peak#	R.Time	Area	Area%	A/H	Name
1	5.800	57901	0.20	6.02	Silane, dimethyl[2-(pentafluorophenyl)ethyl]-
2	6.130	1002729	3.41	17.91	1,2,3-PROPANETRIOL
3	6.357	797539	2.72	11.88	Thiophene, 2-methoxy-5-methyl- (CAS)
4	6.690	392783	1.34	11.18	Ethyl 3-methyloxiranecarboxylate isomer
5	6.858	220894	0.75	8.43	t-Butyl-n-pentamethylenetrithiopercarbamate
6	11.150	112257	0.38	6.94	Diglycolic acid, dodecyl propyl ester
7	11.341	312893	1.07	8.07	Sarreroside
8	11.417	241603	0.82	8.59	Aziridine, 1-(1,2,3,4-tetrahydro-2-naphthyl)-
9	11.868	377499	1.29	13.14	DECANE
10	12.158	93546	0.32	13.72	1,1,4,7-TETRAMETHYLDECAHYDRO-1H-CYCLOPROPA[E]AZULEN-4-OL #
11	12.325	57428	0.20	4.20	1H-CYCLOPROP[E]AZULENE, DECAHYDRO-1,1,7-TRIMETHYL-4-METHYLEN
12	12.419	140654	0.48	5.65	Butylated Hydroxytoluene
13	12.698	413366	1.41	12.78	7-Oxabicyclo[4.1.0]heptan-3-ol, 6-(3-hydroxy-1-butenyl)-1,5,5-trimethyl-
14	13.305	190557	0.65	8.09	.beta.-D-Glucopyranose, 1,6-anhydro-
15	13.944	392827	1.34	7.39	CHOLEST-4-EN-3-ONE
16	14.517	386872	1.32	9.36	2-Cyclohexen-1-one, 4-(3-hydroxy-1-butenyl)-3,5,5-trimethyl-
17	14.658	106754	0.36	4.00	(-)-nepetalactol
18	14.767	248917	0.85	3.32	1-Allyl-1-but-3-enyl-1-silacyclobutane
19	14.925	62769	0.21	5.46	Pentadecanoic acid, 13-oxo-, ethyl ester
20	15.093	404751	1.38	10.68	E,E,Z-1,3,12-Nonadecatriene-5,14-diol
21	15.547	139876	0.48	5.56	7-Oxabicyclo[4.1.0]heptan-3-ol, 6-(3-hydroxy-1-butenyl)-1,5,5-trimethyl-
22	15.853	1502506	5.12	10.13	6-Hydroxy-4,4,7a-trimethyl-5,6,7,7a-tetrahydrobenzofuran-2(4H)-one
23	16.198	311551	1.06	6.69	Z-11-Pentadecenal
24	16.343	1492855	5.08	8.31	PLUCHIDIOL
25	16.523	1339347	4.56	3.94	Neophytadiene
26	16.896	372922	1.27	4.22	2-Hexadecen-1-ol, 3,7,11,15-tetramethyl-, [R-[R*,R*-(E)]]- (CAS)

Peak#	R.Time	Area	Area%	A/H	Name
27	17.201	390632	1.33	3.05	2-Hexadecen-1-ol, 3,7,11,15-tetramethyl-, [R-[R*,R*-(E)]]- (CAS)
28	17.663	43290	0.15	4.80	Methyl 15-oxohexadecanoate
29	17.933	26007	0.09	3.49	9-Hexadecenoic acid, methyl ester, (Z)- (CAS)
30	18.031	636385	2.17	4.23	Hexadecanoic acid, methyl ester (CAS)
31	18.438	314526	1.07	7.86	Phytol
32	18.717	41841	0.14	4.74	2,4-Pentanedione, 3-(2-propenyl)-
33	18.991	644985	2.20	8.42	n-Hexadecanoic acid
34	21.845	120873	0.41	4.27	9,12-Octadecadienoic acid (Z,Z)-, methyl ester
35	21.996	203975	0.69	4.41	9-Octadecenoic acid, methyl ester, (E)-
36	22.237	4719289	16.07	5.10	2-HEXADECEN-1-OL, 3,7,11,15-TETRAMETHYL-, [R-[R*,R*-(E)]]-
37	22.604	445167	1.52	6.42	Methyl stearate
38	22.900	8920	0.03	3.43	1,3-Dimethyl 2-(pyridin-3-ylmethylidene)propanedioate
39	22.980	30745	0.10	2.86	PALMITALDEHYDE, DIALLYL ACETAL
40	23.740	83176	0.28	7.01	Octadecanoic acid
41	24.119	40807	0.14	4.37	OCTADECANOIC ACID, ETHYL ESTER
42	26.968	99782	0.34	10.39	METHYL ICOSANOATE
43	29.497	23658	0.08	3.06	Hexanoic acid, 3-(2,2,3,3-tetramethylcyclopropylidenmethylidene)-4-methyl-
44	30.772	405247	1.38	5.18	Bis(2-ethylhexyl) phthalate
45	31.065	1345230	4.58	10.08	Lup-20(29)-en-3-one
46	31.218	1657308	5.64	10.04	Lup-20(29)-en-3-one
47	33.122	107683	0.37	7.26	Lupeol
48	33.942	38029	0.13	5.49	CYCLODODECASILOXANE, TETRACOSAMETHYL-
49	34.063	44015	0.15	3.68	Flavone, 2',5'-dihydroxy-3,4',5,6,7-pentamethoxy-, diacetate
50	35.003	19144	0.07	3.14	ISOLONGIFOLAN-8-OL
51	35.243	79211	0.27	7.54	Squalene
52	35.442	36371	0.12	6.92	CYCLOPROPA[D]NAPHTHALEN-5(6H)-ONE, OCTAHYDRO-4A-METHYL-7-(1-
53	35.702	2296587	7.82	9.73	.alpha.-Tocospiro A
54	35.875	434478	1.48	5.06	STIGMAST-4-EN-3-ONE
55	35.998	1455988	4.96	8.02	.alpha.-Tocospiro B
56	37.407	49345	0.17	3.69	.delta.-Tocopherol
57	37.617	174100	0.59	8.02	Ergosta-5,7,9(11),22-tetraen-3-ol, (3.beta.,22E)-
58	39.059	42271	0.14	4.09	(22E,24R)-24-ETHYLCHOLESTA-5,7,9(11),22-TETRAEN-3B-OL
59	39.258	362128	1.23	6.58	.delta.-Tocopherol, O-methyl-
60	39.601	237964	0.81	7.69	Cholesta-4,6-dien-3-ol, benzoate, (3.beta.)- (CAS)
61	40.857	1365761	4.65	6.89	dl-.alpha.-Tocopherol
62	43.332	170445	0.58	10.16	Campesterol
		29368959	100.00		

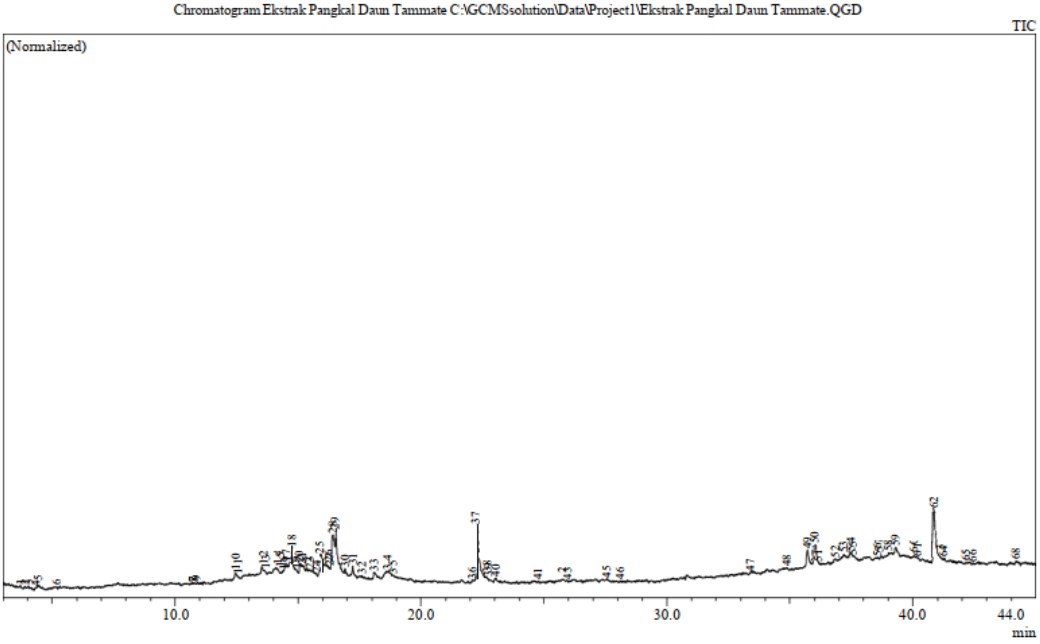
c. Ekstrak bagian pangkal

DATA REPORT GCMS-QP2010 ULTRA SHIMADZU

Sample Information

Analyzed by	: Admin
Analyzed	: 17/12/2031 5:49:42 AM
Sample Type	: Unknown
Level #	: 1
Sample Name	: Ekstrak Pangkal Daun Tammate
Sample ID	: Ekstrak Pangkal Daun Tammate
IS Amount	: [1]=1
Sample Amount	: 1

Chromatogram Ekstrak Pangkal Daun Tammate C:\GCMSsolution\Data\Project1\Ekstrak Pangkal Daun Tammate.QGD



Peak Report TIC

Peak#	R.Time	Area	Area%	A/H	Name
1	3.710	18379	0.14	2.68	3,7,11-Trimethyl-2,4-dodecadiene
2	3.907	29591	0.23	4.08	(1'R,5'R,6'S)-(-6'-HYDROXY-3',3'-DIMETHYL-2',4'-DIOXABICYCLO[3.3.0]OCT-6'-
3	4.040	27991	0.22	3.54	N-[4-Chloro-2-chloroacetamidophenyl]piperidine
4	4.317	26708	0.21	4.01	1-O-Benzyl-3-(hydroxymethyl)-7-methyldeca-2,6-dien-1-ol
5	4.478	72169	0.57	7.62	9,10-Secocholesta-5,7,10(19)-triene-1,3,25-triol, (3.beta.,5Z,7E)-
6	5.194	56747	0.45	7.76	Silane, diphenylcitronellyloxypentyloxy-
7	10.692	19363	0.15	3.18	BENZENEPROPANOIC ACID, .ALPHA.-HYDROXY-, 6-HYDROXY-7-[(2-METHY
8	10.750	26374	0.21	6.24	Fumaric acid, 2,6-dichlorophenyl 2-fluorophenyl ester
9	10.912	58190	0.46	6.83	Benzaldehyde, 2-fluoro-, (5-methyl-4-oxothiazolidin-2-ylideno)hydrazone
10	12.472	122957	0.97	6.47	Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl- (CAS)
11	12.558	22507	0.18	2.91	Benzene, 1,2-dichloro-3-nitro- (CAS)
12	13.525	113544	0.89	5.03	Caryophyllenyl alcohol
13	13.658	51790	0.41	5.01	Ethanone, 1-(1a,2,3,5,6a,6b-hexahydro-3,3,6a-trimethyloxireno[g]benzofuran-5-yl)-
14	14.112	158853	1.25	8.78	5-Methyl-2(2-oxo-4-heptyl)furan
15	14.183	47257	0.37	3.42	cis-2-ethyl-3-methyl-6-[(E)-4-methylpent-2-en-2-yl]-5,6-dihydro-2H-pyran
16	14.358	48095	0.38	5.98	Cyclopenta[c]pyran-1(4aH)-one, 5,6,7,7a-tetrahydro-4,7-dimethyl- (CAS)
17	14.506	289670	2.28	8.61	3-OXO-.ALPHA.-IONOL
18	14.768	672634	5.30	7.77	Decane, 5,6-bis(2,2-dimethylpropylidene)-, (E,Z)-
19	14.942	62877	0.50	3.88	Silane, (5.beta.-pregnan-3.alpha.,6.alpha.-ylenedioxy)bis[trimethyl- (CAS)
20	15.099	224455	1.77	5.92	Caryophyllane, 4,8-.beta.-epoxy
21	15.208	231584	1.82	7.42	2-Cyclohexen-1-one, 4-(3-hydroxybutyl)-3,5,5-trimethyl-
22	15.366	104462	0.82	4.62	Hydrazinecarboxamide, 2-(2-methylcyclohexylidene)-
23	15.453	235592	1.86	11.86	2,6,10-CYCLOUNDECATRIEN-1-ONE, 2,6,9,9-TETRAMETHYL-, (E,E,E)-
24	15.742	66199	0.52	7.07	2,4-Dichloro-5-nitrotoluene
25	15.921	797981	6.28	11.34	6-Hydroxy-4,4,7a-trimethyl-5,6,7,7a-tetrahydrobenzofuran-2(4H)-one
26	16.208	288533	2.27	8.23	2,11-Dioxatetracyclo[4.3.1.1(3,10).0(6,9)]undec-4-ene, 3,7,7,10-tetramethyl-

Peak#	R.Time	Area	Area%	A/H	Name
27	16.275	98356	0.77	3.18	4-[3-(4-Fluorobenzyloxy)propyl]-1H-imidazole
28	16.418	1135423	8.94	8.53	Pluchidiol
29	16.541	1151759	9.07	8.33	Neophytadiene
30	16.913	169099	1.33	5.71	3,7,11,15-Tetramethyl-2-hexadecen-1-ol
31	17.221	270441	2.13	7.42	3,7,11,15-Tetramethyl-2-hexadecen-1-ol
32	17.597	72165	0.57	8.56	Silane, diphenyl(8-chloroctyloxy)isohexyloxy-
33	18.095	117443	0.92	6.14	Hexadecanoic acid, methyl ester
34	18.625	267917	2.11	13.81	7-Oxabicyclo[4.1.0]heptan-3-ol, 6-(3-hydroxy-1-butenyl)-1,5,5-trimethyl-
35	18.892	32343	0.25	5.48	1B,4A-EPOXY-2H-CYCLOPENTA[3,4]CYCLOPROPA[8,9]CYCLOUNDEC[1,2-B]
36	22.092	55947	0.44	6.22	9-OCTADECENOIC ACID (Z)-, METHYL ESTER
37	22.287	1544230	12.16	8.46	Phytol
38	22.658	65020	0.51	4.77	Heptadecanoic acid, 16-methyl-, methyl ester
39	22.725	16443	0.13	2.33	Glutaric acid, 2-methylpent-3-yl 2-methyloct-5-yn-4-yl ester
40	23.042	57186	0.45	4.95	PALMITALDEHYDE, DIALLYL ACETAL
41	24.767	27101	0.21	4.01	TRIS-(2-BROMOETHYL)AMINE
42	25.743	52659	0.41	8.18	5,12-Dioxa-2,4,6,11,13-pentaazatricyclo[8.3.0.0((3,7)]trideca-1(13),3,6,8,10-pentaene-8
43	25.942	26014	0.20	3.61	1HO-33:0 TMS
44	27.387	57717	0.45	6.97	SPIRO[BICYCLO[4.1.0]HEPTANE-2,1'-CYCLOPENTANE]-2',3'-DIOL, 3'-[(ACETY
45	27.567	34825	0.27	5.62	6-Nonadecyltetrahydro-2H-pyran-2-one
46	28.098	37652	0.30	5.90	Silane, [[(3.beta.,5.alpha.,17.beta.)-androstane-3,17-diyl]bis(oxy)]bis[trimethyl- (CAS)
47	33.400	10812	0.09	2.59	2-Phenylpiperazine, N,N'-di-TFA
48	34.884	60508	0.48	7.50	D-MANNITOL, HEXAACETATE
49	35.722	391828	3.09	7.47	.alpha.-Tocospiro A
50	36.035	518041	4.08	8.00	.alpha.-Tocospiro A
51	36.192	10523	0.08	1.73	Bis(4-nitrophenyl)phosphoric acid
52	36.876	68592	0.54	8.02	CHELOVIOLENE D
53	37.194	61168	0.48	5.11	.beta.-iso-methyl ionone
54	37.488	154760	1.22	8.37	.delta.-Tocopherol
55	37.650	45730	0.36	7.97	DIHYDROGEISSOSCHIZINE
56	38.578	67028	0.53	9.43	Succinic acid, di(2-(pentafluorophenoxy)ethyl) ester
57	38.725	41095	0.32	4.59	6-Hydroxy-3-(4-methoxyphenyl)-4-methylcoumarin, trimethylsilyl ether
58	39.017	87953	0.69	10.11	Curcumenone
59	39.307	251519	1.98	8.78	.beta.-Tocopherol
60	40.063	53245	0.42	5.63	Stigmasta-3,5-diene
61	40.233	47283	0.37	6.62	2H-3,13-Methanooxireno[9,10]azacycloundecino[5,4-b]indol-5a(1aH)-ol, 13-ethyl-4,5,1
62	40.881	1316195	10.36	7.84	dl-.alpha.-Tocopherol
63	41.150	42341	0.33	2.79	1-Hydroxy-4-methoxy-3-phenyl-2-(2-phenylethynyl)tetrahydronaphthalene
64	41.292	56330	0.44	5.20	3-[4-(2-HYDROXY-ETHYLAMINO)-6-MORPHOLIN-4-YL-[1,3,5]TRIAZIN-2-YLA
65	42.172	80872	0.64	9.76	Silane, diphenyl(but-3-yn-2-yloxy)pentoxy-
66	42.450	23689	0.19	3.74	6-(4-ADAMANTAN-1-YL-PIPERAZIN-1-YL)-N-PROPYL-N'-(4-TRIFLUOROMETH
67	43.942	43711	0.34	6.65	Pregna-5,16-dien-20-one, 3,21-bis(acetyloxy)-, (3.beta.)-
68	44.211	102113	0.80	8.59	1,2-DISTEARIN TRIMETHYLSILYLETHER
		12699578	100.00		

Lampiran 3. Perhitungan rendamen ekstrak.

Bagian	Berat Sampel (g)	Bobot Ekstrak (g)	Rendamen Ekstrak (%)
Ujung	250	28,44	11,376
Tengah	250	38,16	15,264
Pangkal	250	33,94	13,576

Rumus perhitungan rendemen(%) =

$$\frac{\boldsymbol{bobot\ ekstrak\ (g)}}{\boldsymbol{bobot\ simplisia\ (g)}} \text{ x } 100\%$$

- Ekstrak bagian ujung

$$\frac{bobot\ ekstrak\ (g)}{bobot\ simplisia\ (g)} \text{ x } 100\% = \frac{28{,}44\ g}{250\ g} \text{ x } 100\%$$

$$= 11{,}376\ \%$$

- Ekstrak bagian tengah

$$\frac{bobot\ ekstrak\ (g)}{bobot\ simplisia\ (g)} \text{ x } 100\% = \frac{38{,}16\ g}{250\ g} \text{ x } 100\%$$

$$= 15{,}264\ \%$$

- Ekstrak bagian pangkal

$$\frac{bobot\ ekstrak\ (g)}{bobot\ simplisia\ (g)} \text{ x } 100\% = \frac{33{,}94 g}{250\ g} \text{ x } 100\%$$

$$= 13{,}576\ \%$$

Lampiran 5. Data Descriptive Statistics

Descriptive Statistics

	N	Mean	Std. Deviation
Daun Ujung S. Aerus	3	10.467	.2082
Daun Tengah S. Aerus	3	8.367	.2517
Daun Pangkal S. Aerus	3	7.533	.1155
Valid N (listwise)	3		

Descriptive Statistics

	N	Mean	Std. Deviation
Daun Ujung *Escherichia coli*	3	12.267	.2517
Daun Tengah *Escherichia coli*	3	7.767	.1528
Daun Pangkal *Escherichia coli*	3	6.933	.1528
Valid N (listwise)	3		

Lampiran 6. Dokumentasi

Pengambilan daun *Lannea coromandelica*

pemisahan daun bagian ujung, tengah dan pangkal

Daun bagian ujung

Daun bagian tengah

Daun bagian pangkal

Pengeringan simplisia

pengayakan serbuk simplisia dengan ayakan no.20

Maserasi serbuk simplisia

rotary evaporator untuk menghasilkan ekstrak

Ekstrak ujung

ekstrak tengah

ekstrak pangkal