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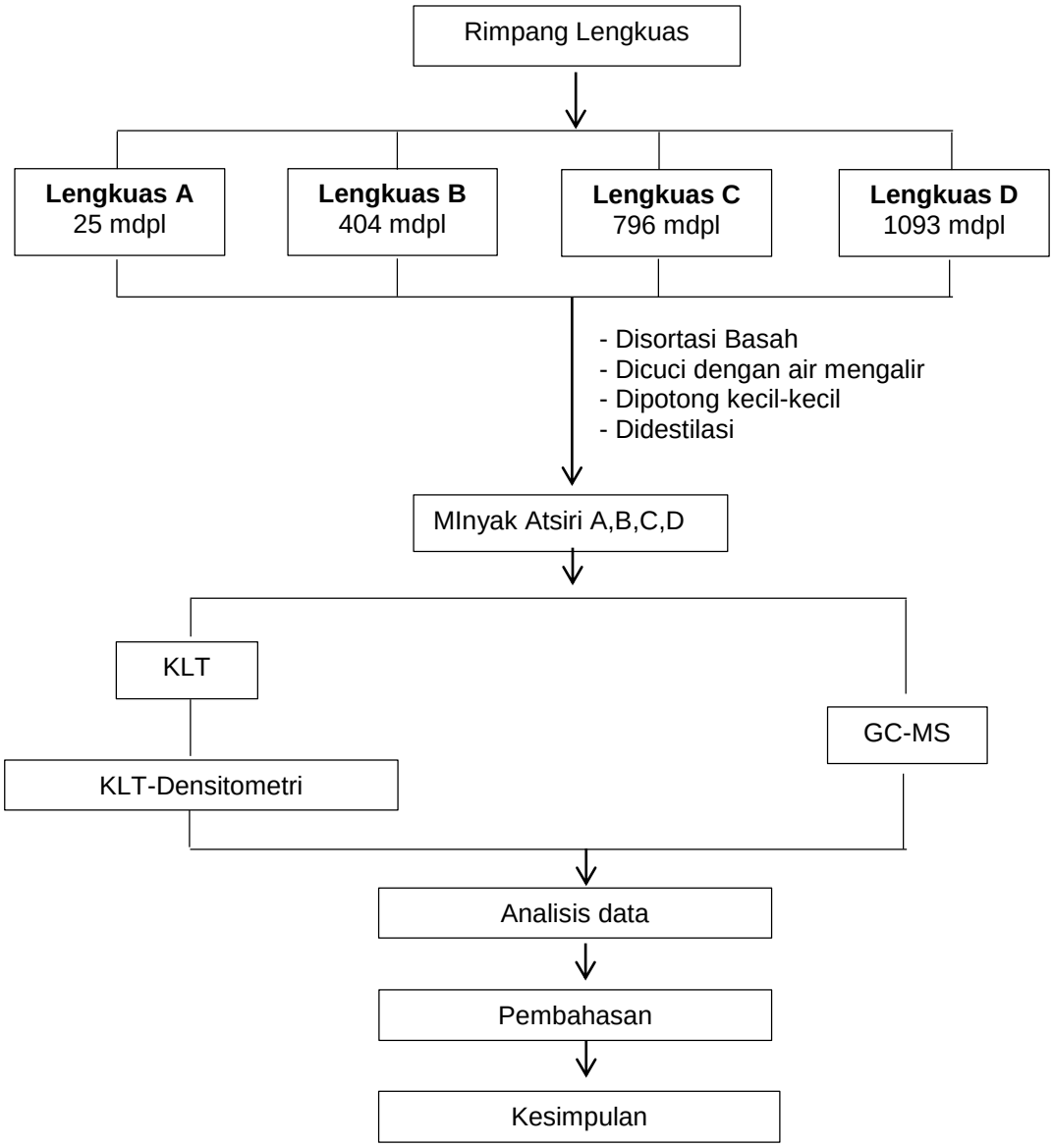
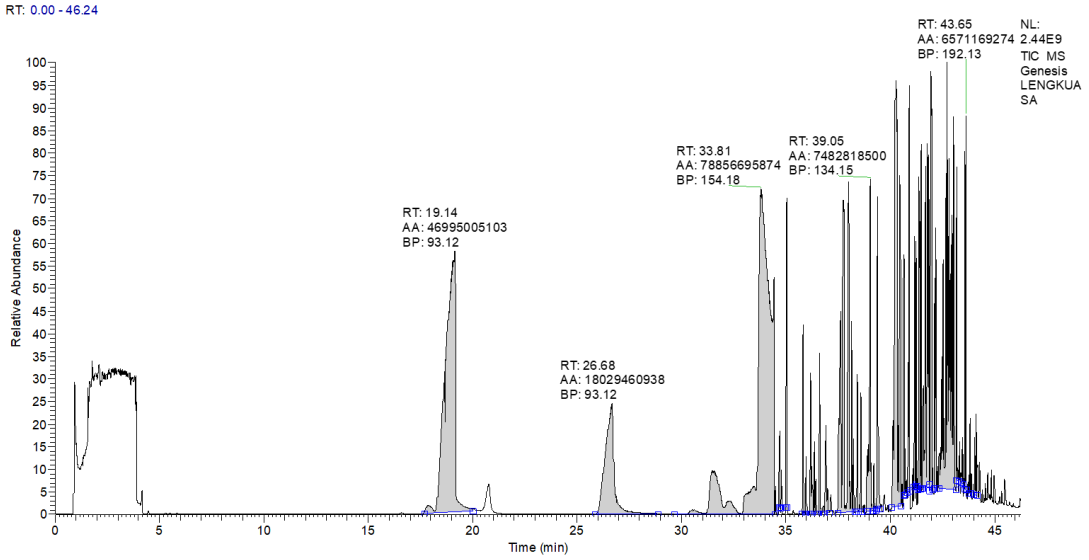
LAMPIRAN 1

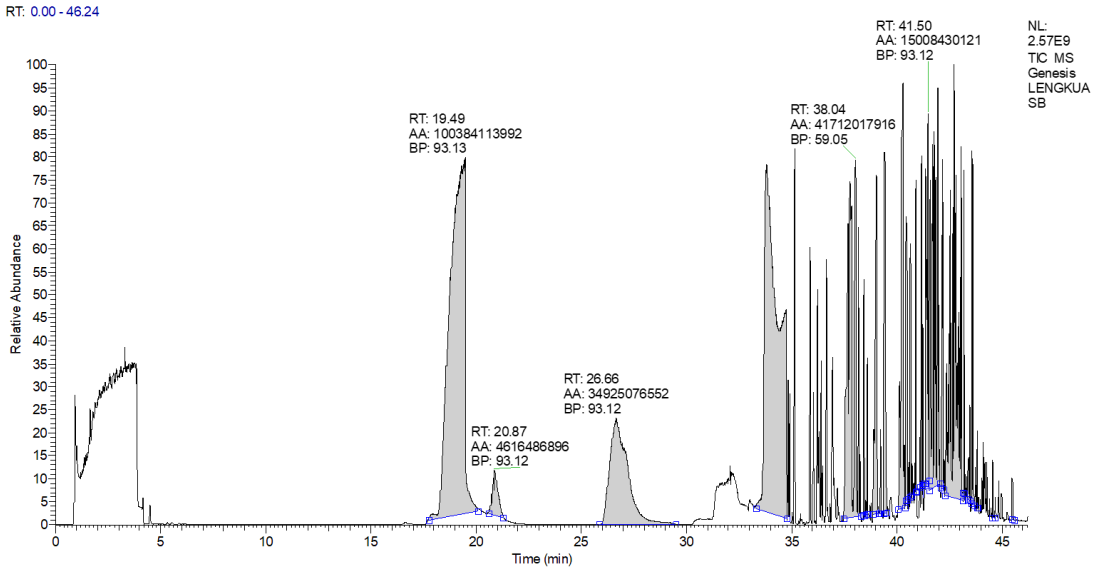
Skema Kerja



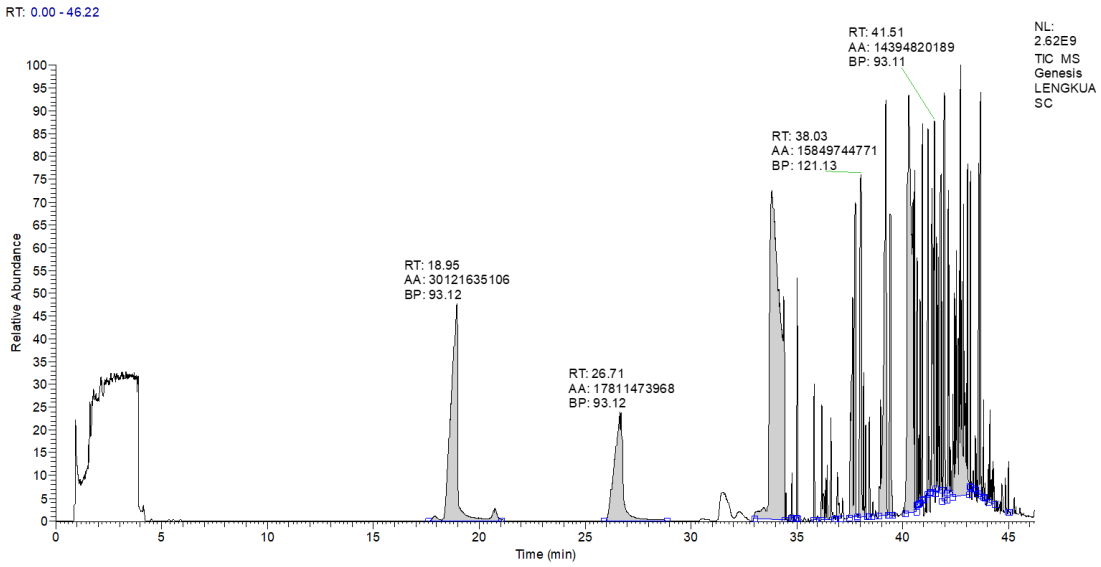
LAMPIRAN 2
Hasil Analisis GC-MS



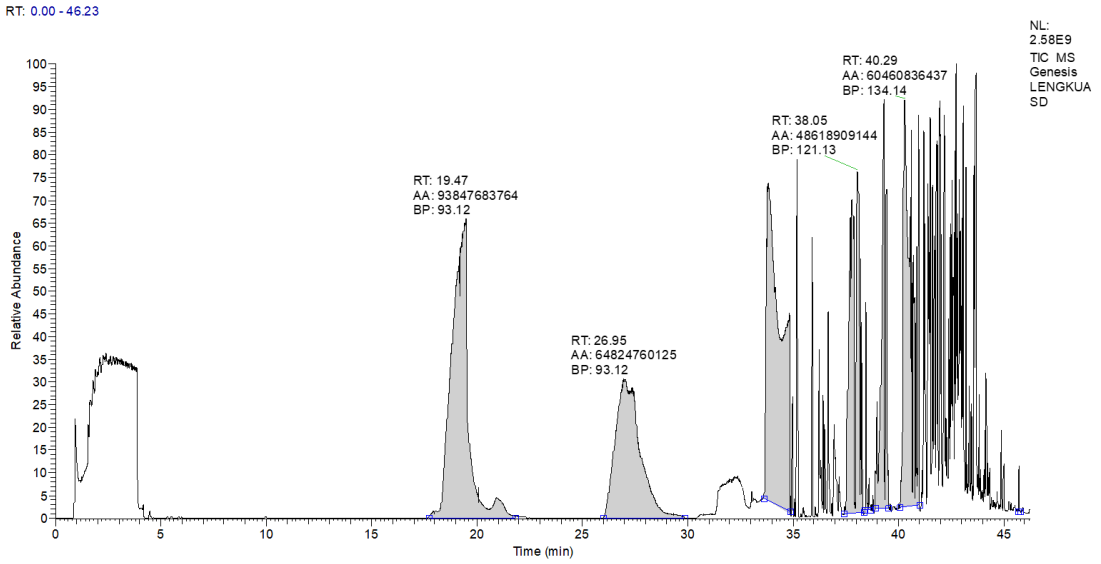
Gambar 101. Kromatogram Minyak Atsiri Rimpang Lengkuas A (25 m dpl)



Gambar 102. Kromatogram Minyak Atsiri Rimpang Lengkuas B (404 m dpl)



Gambar 103. Kromatogram Minyak Atsiri Rimpang Lengkuas C (796 m dpl)



Gambar 104. Kromatogram Minyak Atsiri Rimpang Lengkuas D (1093 m dpl)

KEMENTERIAN KESEHATAN RI
DIREKTORAT JENDERAL PELAYANAN KESEHATAN
BALAI BESAR LABORATORIUM KESEHATAN MAKASSAR
Jl. Perintis Kemerdekaan KM.11 Tamalanrea Makassar 90245

LAPORAN HASIL UJI
Report of Analysis
No : 19012909/ LHU / BBLK-MKS / V / 2019

Nama Customer	:	**GRACE NATALIA TIMANG**
Customer Name	:	
Alamat	:	BTP Blok A No. 6
Address	:	
Jenis Sampel	:	Minyak Atsiri
Type of Sample (S)	:	
No. Sampel	:	19012909
No. Sample	:	
Tanggal Penerimaan	:	20 Juni 2019
Received Date	:	*June 20, 2019*

HASIL PEMERIKSAAN

No. Lab	Kode Sampel	RT	Probabilitas (%)	Senyawa
19012909	LENGKUAS A	19.14	14.00	(1R)-2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene
		26.68	19.50	β-Pinene
		33.81	87.30	Eucalyptol
		34.71	94.60	2-Heptanol, acetate
		35.05	50.10	γ-Terpinene
		35.83	31.40	Cyclohexene, 1-methyl-4-(1-methylethylidene)-
		35.99	94.10	2-Nonanone
		36.2	84.90	1,6-Octadien-3-ol, 3,7-dimethyl-
		36.93	53.40	2-Cyclohexen-1-ol, 1-methyl-4-(1-methylethenyl)-, trans-
		38.02	65.40	α-Terpineol
		38.42	63.20	2-Cyclohexen-1-ol, 2-methyl-5-(1-methylethenyl)-, cis-
		38.61	34.80	Cyclopropanecarboxylic acid, nonyl ester
		39.05	46.40	Phenol, 4-(2-propenyl)-
		39.21	11.90	Bicyclo[3.1.0]hexan-3-ol, 4-methylene-1-(1-methylethyl)-, acetate
		39.41	43.20	Bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimethyl-, acetate, (1S-endo)-
		40.28	78.90	Phenol, 4-(2-propenyl)-, acetate
		40.65	38.10	Geranyl acetate
		40.93	78.90	Methyleugenol
		41.18	31.00	Caryophyllene
		41.26	52.30	Bicyclo[3.1.1]hept-2-ene, 2,6-dimethyl-6-(4-methyl-3-pentenyl)-
		41.37	39.50	cis-β-Farnesene
		41.5	40.20	Humulene
		41.8	57.40	α-Farnesene
		41.95	35.50	Phenol, 2-methoxy-4-(2-propenyl)-, acetate
		42.17	13.90	Lanceol, cis
		42.73	16.20	2-(2,5-Dimethoxy-phenyl)-propionaldehyde
		43.19	74.50	2,6,10-Dodecatrienal, 3,7,11-trimethyl-, (E,E)-
		43.48	5.35	9,12-Octadecadienoyl chloride, (Z,Z)-
		43.65	19.90	3,5,7-Nonatrien-2-one, 8-methyl-7-(1-methylethyl)-, (E,E)-
		43.83	13.50	Cholestan-3-ol, 2-methylene-, (3β,5α)-
		44.12	6.58	2,6,10-Dodecatriene, 12-acetoxy-6-hydroxymethyl-2,10-dimethyl-, (E,E)-

Makassar, 4 Juli 2019
Kepala Instalasi Kimia Kesehatan,

JOHARSAN, S.Farm
NIP. 196802061988031002

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Surat Elektronik : bblk_makassar@yahoo.com bblk.mksr@gmail.com

KEMENTERIAN KESEHATAN RI
DIREKTORAT JENDERAL PELAYANAN KESEHATAN
BALAI BESAR LABORATORIUM KESEHATAN MAKASSAR
Jl. Perintis Kemerdekaan KM.11 Tamalanrea Makassar 90245

LAPORAN HASIL UJI
Report of Analysis
No : 19011802 / LHU / BBLK-MKS / V / 2019

Nama Customer	:	**GRACE NATALIA TIMANG**
Customer Name	:	
Alamat	:	BTP Blok A No. 6
Address	:	
Jenis Sampel	:	Minyak Atsiri
Type of Sample (S)	:	
No. Sampel	:	19011802
No. Sample	:	
Tanggal Penerimaan	:	12 Juni 2019
Received Date	:	*June 12, 2019*

HASIL PEMERIKSAAN

No. Lab	Kode Sampel	RT	Probabilitas (%)	Senyawa
19011802	LENGKUAS B	19.49	16.00	(1R)-2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene
		20.87	33.00	Camphene
		26.66	21.9	β-Pinene
		33.83	86.20	Eucalyptol
		38.04	63.30	α-Terpineol
		38.43	59.40	2-Cyclohexen-1-ol, 2-methyl-5-(1-methylethenyl)-, cis-
		38.62	25.10	Cyclopropanecarboxylic acid, nonyl ester
		39.04	49.30	Phenol, 4-(2-propenyl)-
		39.22	15.40	Bicyclo[3.1.0]hexan-3-ol, 4-methylene-1-(1-methylethyl)-, [1S-(1α,3β,5α)]-
		39.43	34.10	Bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimethyl-, acetate, (1S-endo)-
		40.29	77.50	Phenol, 4-(2-propenyl)-, acetate
		40.46	18.40	Eugenol
		40.65	37.20	Geranyl acetate
		40.91	76.30	Methyleugenol
		41.18	31.90	Caryophyllene
		41.26	40.60	Bicyclo[3.1.1]hept-2-ene, 2,6-dimethyl-6-(4-methyl-3-pentenyl)-
		41.5	58.40	Humulene
		41.96	34.20	Phenol, 2-methoxy-4-(2-propenyl)-, acetate
		42.17	18.40	Lanceol, cis
		42.73	12.80	Spirio-10-(2,11-dioxabicyclo[4.4.1]undeca-3,5-diene)-2'-(oxirane), 1,3,7,7-tetramethyl-
		43.19	75.00	2,6,10-Dodecatrienal, 3,7,11-trimethyl-, (E,E)-
		43.48	7.15	Tetradecanal
		43.59	61.90	Farnesol, acetate
		43.83	10.00	Cholestan-3-ol, 2-methylene-, (3β,5α)-
		44.56	69.30	1,7,7-Trimethyl-3-phenethylidenebicyclo[2.2.1]heptan-2-one
		45.5	75.40	2-Propenoic acid, 3-(4-methoxyphenyl)-, 2-ethylhexyl ester

Makassar, 4 Juli 2019
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LAPORAN HASIL UJI

Report of Analysis

No : 19011803 / LHU / BBLK-MKS / V / 2019

Nama Customer *Customer Name*	:	**GRACE NATALIA TIMANG**
Alamat *Address*	:	BTP Blok A No. 6
Jenis Sampel *Type of Sample (S)*	:	Minyak Atsiri
No. Sampel *No. Sample*	:	19011803
Tanggal Penerimaan *Received Date*	:	12 Juni 2019 *June 12, 2019*

HASIL PEMERIKSAAN

No. Lab	Kode Sampel	RT	Probabilitas (%)	Senyawa
19011803	LENGKUAS C	18.95	11.40	(1R)-2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene
		26.71	25.50	β-Pinene
		33.83	88.10	Eucalyptol
		34.77	28.30	β-Ocimene
		35.02	36.80	γ-Terpinene
		35.82	24.70	Cyclohexene, 1-methyl-4-(1-methylethylidene)-
		36.19	80.80	1,6-Octadien-3-ol, 3,7-dimethyl-
		36.92	52.80	cis-p-Mentha-2,8-dien-1-ol
		37.77	74.10	3-Cyclohexen-1-ol, 4-methyl-1-(1-methylethyl)-, (R)-
		38.03	61.90	α-Terpineol
		38.42	56.40	2-Cyclohexen-1-ol, 2-methyl-5-(1-methylethenyl)-, cis-
		39.21	35.70	Phenol, 4-(2-propenyl)-
		39.42	38.60	Bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimethyl-, acetate, (1S-endo)-
		40.28	78.20	Phenol, 4-(2-propenyl)-, acetate
		40.68	38.20	Geranyl acetate
		40.75	13.40	(Z)-Dec-4-en-1-yl propyl carbonate
		40.82	14.60	5-Decen-1-ol, acetate, (E)-
		40.95	79.70	Methyleugenol
		41.2	35.90	Caryophyllene
		41.51	36.00	1,4,7,-Cycloundecatriene, 1,5,9,9-tetramethyl-, Z,Z,Z-
		41.79	69.80	α-Farnesene
		41.98	28.90	3-Allyl-6-methoxyphenyl acetate
		42.17	21.30	Lanceol, cis
		42.74	19.00	2-(2,5-Dimethoxy-phenyl)-propionaldehyde
		43.2	74.60	2,6,10-Dodecatrienal, 3,7,11-trimethyl-, (E,E)-
		43.41	9.22	Alloaromadendrene oxide-(1)
		43.67	35.30	4-Allyl-1,2-diacetoxybenzene
		43.84	15.40	6,10-Dodecadien-1-yn-3-ol, 3,7,11-trimethyl-
		44.13	6.09	Isoaromadendrene epoxide
		45	21.60	Bergamotol, Z-α-trans-

Makassar, 4 Juli 2019
Kepala Instalasi Uji Kesehatan,

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Surat Elektronik : bblk_makassar@yahoo.com bblk.mksr@gmail.com

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BALAI BESAR LABORATORIUM KESEHATAN MAKASSAR
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LAPORAN HASIL UJI

Report of Analysis

No : 19011804 / LHU / BBLK-MKS / V / 2019

Nama Customer	:	**GRACE NATALIA TIMANG**
Customer Name	:	
Alamat	:	BTP Blok A No. 6
Address	:	
Jenis Sampel	:	Minyak Atsiri
Type of Sample (S)	:	
No. Sampel	:	19011804
No. Sample	:	
Tanggal Penerimaan	:	12 Juni 2019
Received Date	:	*June 12, 2019*

HASIL PEMERIKSAAN

No. Lab	Kode Sampel	RT	Probabilitas (%)	Senyawa
19011804	LENGKUAS D	19.47	15.10	(1R)-2,6,6-Trimethylbicyclo[3.1.1]hept-2-ene
		26.95	24.80	β-Pinene
		33.85	87.00	Eucalyptol
		34.77	28.30	β-Ocimene
		38.05	67.10	α-Terpineol
		39.32	24.20	Phenol, 4-(2-propenyl)-, acetate
		40.29	83.50	Phenol, 4-(2-propenyl)-, acetate
		45.73	11.40	Heptacosane

Makassar, 4 Juli 2019
Kepala Instalasi Kimia Kesehatan,

JOHARSAN, S.Farm
NIP : 196802061988031002

LAMPIRAN 3

Hasil Analisis KLT-Densitometri

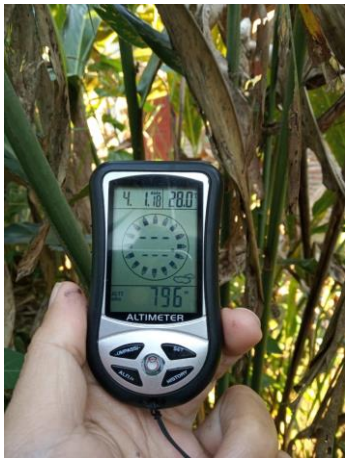
Tabel 9. Hasil Analisis KLT-Densitometri

Range Rf	Trek 1 (A1)		Trek 2 (A2)		Trek 3 (A3)		Trek 4 (B1)		Trek 5 (B2)		Trek 6 (B3)		Trek 7 (C1)	
	Rf	AUC (%)	Rf	AUC (%)	Rf	AUC (%)	Rf	AUC (%)	Rf	AUC (%)	Rf	AUC (%)	Rf	AUC (%)
0,00-0,10	0,01	0,15	0,00	0,65	0,02	6,13	0,00	0,36	0,01	0,11	0,00	0,92	0,01	0,90
	0,02	2,46	0,02	3,07	0,05	13,82	0,02	5,49	0,02	3,44	0,02	6,92	0,04	9,24
	0,05	15,84	0,05	12,18	0,10	0,68	0,05	14,92	0,05	13,23	0,05	10,92	0,10	1,53
	0,10	2,11	0,10	1,13	-	-	0,10	0,65	0,09	1,05	0,10	0,42	-	-
0,11-0,20	0,15	0,96	0,15	4,38	0,15	4,07	0,15	1,57	0,15	1,09	0,15	1,77	0,15	1,92
	-	-	-	-	-	-	-	-	0,20	5,06	-	-	-	-
0,21-0,30	0,21	8,33	0,21	4,30	0,21	2,99	0,21	4,36	0,30	30,78	0,21	6,42	0,21	0,42
							0,26	1,41	-	-	-	-	0,24	0,61
	-	-	-	-	-	-	-	-	-	-	-	-	0,29	42,25
0,31-0,40	0,31	38,76	0,32	29,24	0,31	24,40	0,31	30,10	0,39	2,21	0,31	28,02		-
	-	-	-	-	0,40	3,51	0,39	1,75	-	-	0,39	1,99	-	-
0,41-0,50	0,43	0,87	0,42	2,33	-	-	-	-	-	-	-	-	0,43	2,11
	0,50	0,41	-	-	-	-	-	-	-	-	-	-	0,50	31,57
0,51-0,60	0,59	25,48	0,56	35,33	0,55	40,27	0,57	32,44	0,53	36,97	0,55	34,95		
0,61-0,70									0,68	4,71	0,69	4,74	0,65	7,13
0,71-0,80	0,72	2,0	0,71	3,99	0,72	2,71	0,72	1,66	-	-	-	-	-	-
	-	-	-	-	-	-	0,74	3,0	-	-	-	-	-	-
0,81-0,90	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0,91-1,0	0,92	2,63	0,93	3,41	0,95	1,41	0,94	2,29	0,94	1,34	0,94	2,92	0,91	2,31

Range Rf	Trek 8 (C2)		Trek 9 (C3)		Trek 10 (D1)		Trek 11 (D2)		Trek 12 (D3)		trek 13 (Eugenol)		Trek 14 (Cineol)	
	Rf	AUC (%)	Rf	AUC (%)	Rf	AUC (%)	Rf	AUC (%)	Rf	AUC (%)	Rf	AUC (%)	Rf	AUC (%)
0,00-0,10	0,02	0,42	0,02	0,22	0,04	13,44	0,01	1,69	0,03	1,91	0,01	2,22	0,03	2,22
	0,05	3,77	0,04	3,11	-	-	0,04	13,32	0,04	9,02	0,08	11,67	-	-
	0,09	1,26	0,09	1,20	-	-	-	-	0,09	0,74	-	-	-	-
0,11-0,20	0,15	2,22	0,14	2,10	0,15	0,42	0,14	0,93	0,14	4,01	0,18	9,38	-	-
	0,20	0,33	-	-	0,19	0,37	-	-	-	-	-	-	-	-
0,21-0,30	0,23	0,73	0,21	0,63	0,22	2,79	0,21	1,83	0,27	1,03	0,28	1,76	-	-
	0,27	49,77	0,24	0,87	0,30	37,96	0,29	37,57	0,30	47,13	-	-	-	-
			0,27	48,28	-	-	-	-	-	-	-	-	-	-
0,31-0,40	-	-	-	-	0,30	37,96	-	-	0,30	47,13	-	-	-	-
	-	-	-	-	-	-	-	-	0,40	1,30	-	-	-	-
0,41-0,50	0,50	31,97	0,50	32,55	-	-	0,43	1,95	-	-	0,47	71,04	-	-
	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0,51-0,60					0,53	28,82	0,53	30,89	0,54	28,05		-	-	-
0,61-0,70	0,66	6,14	0,67	7,60	0,69	11,23	0,68	8,78	-	-	-	-		-
0,71-0,80	-	-	-	-	-	-	-	-	-	-	-	-		-
0,81-0,90	-	-	-	-	-	-	-	-	-	-	-	-		-
0,91-1,0	0,90	3,40	0,90	2,69	0,91	2,15	0,91	2,89	0,92	5,39	0,91	3,31	0,92	18,66
	-	-	0,98	0,75	0,98	0,54	0,98	0,93	0,98	1,64	0,98	0,92	0,98	4,79

LAMPIRAN 4

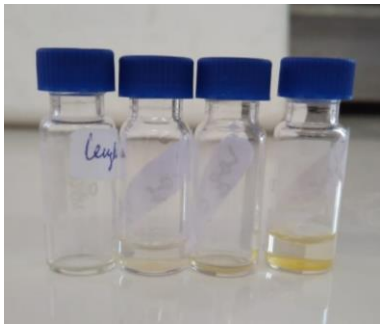
Gambar Penelitian



Gambar 105. Alat Altimeter

Gamba 106. Rimpang Lengkuas

Gambar 107. Penyulingan Minyak Atsiri menggunakan alat *Stahl*



Gambar 108. Minyak Atsiri hasil destilasi dari kiri ke kanan lengkuas A, B, C, dan D

Gambar 109. Instrumen GC-MS

Gambar 110. Instrumen Densitometrer