

BAB V

KESIMPULAN DAN SARAN

A. Kesimpulan

Berdasarkan hasil penelitian yang telah dilakukan dapat disimpulkan bahwa :

Pertama, minyak atsiri daun kemangi (*Ocimum bacilicum* L.), daun jeruk purut (*Citrus hystrix* D. C.) dan kombinasi keduanya memiliki aktivitas antibakteri terhadap *Streptococcus mutans* ATCC 25175 secara *in vitro*.

Kedua, kombinasi minyak atsiri daun kemangi dan minyak atsiri daun jeruk purut memiliki aktivitas antibakteri paling besar yaitu pada perbandingan 1:3 konsentrasi 4% dengan zona hambat 14,75 mm.

B. Saran

Pertama, perlu dilakukan penelitian lebih lanjut untuk melakukan uji aktivitas antibakteri kombinasi minyak atsiri daun kemangi (*Ocimum bacilicum* L.) dan minyak atsiri daun jeruk purut (*Citrus hystrix* D. C.) dengan metode yang lain.

Kedua, perlu dilakukan pengembangan formulasi untuk sediaan yang cocok dalam manfaatnya sebagai antibakteri agar mudah digunakan oleh masyarakat.

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Lampiran 1. Hasil determinasi tanaman kemangi dan tanaman jeruk purut



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Yang bertanda tangan dibawah ini, Kepala Laboratorium Sistematika Tumbuhan Fakultas Biologi UGM, menerangkan dengan sesungguhnya bahwa,

Nama	: Jessica Nindia Trista
NIM	: 21154585A
Asal instansi	: Fakultas Farmasi Universitas Setia Budi Surakarta

telah melakukan identifikasi tumbuhan dengan hasil sebagai berikut,

Kingdom	: Plantae
Divisio	: Tracheophyta
Class	: Magnoliopsida
Ordo	: Rutales
Familia	: Rutaceae
Genus	: Citrus
Species	: <i>Citrus hystrix</i> DC.
Sinonim	: <i>Citrus auraria</i> Michel <i>Citrus celebica</i> Koord. <i>Citrus macroptera</i> Montrouz. <i>Citrus micrantha</i> Wester <i>Citrus papeda</i> Miq. <i>Citrus papuana</i> F.M.Bailey
Nama local	: Jeruk Purut

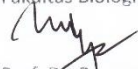
identifikasi tersebut dibantu oleh Prof. Dr. Purnomo, M.S.
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Dr. Budi Setiadi Daryono, M.Agr.Sc.
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identifikasi tersebut dibantu oleh Prof. Dr. Purnomo, M.S.
Demikian surat keterangan ini diberikan untuk dapat dipergunakan seperlunya.

Mengetahui,
Dekan Fakultas Biologi
Universitas Gadjah Mada

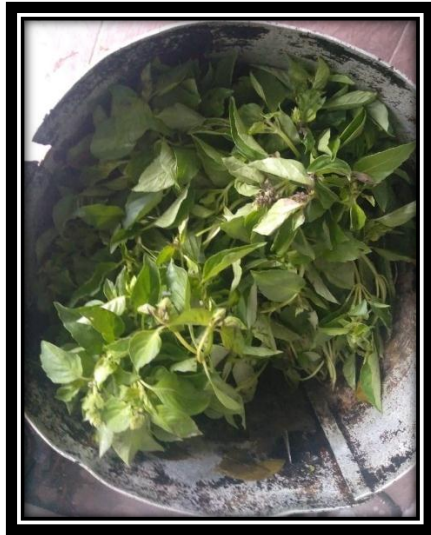


Dr. Budi Setiadi Daryono, M.Agr.Sc.
NIP. 197003261995121001

Yogyakarta, 17 Januari 2019
Kepala Laboratorium
Sistematika Tumbuhan
Fakultas Biologi UGM

Prof. Dr. Purnomo, M.S.
NIP. 195504211982031005

Lampiran 2. Gambar daun kemangi basah, daun jeruk purut basah, alat destilasi uap dan air



Daun kemangi



Daun jeruk purut

Lampiran 3. Gambar pemisahan minyak atsiri dari air



Minyak atsiri daun kemangi



Minyak atsiri daun jeruk purut

Lampiran 4. Foto alat penelitian

Alat destilasi uap dan air



Neraca analitik



Erlenmeyer



Beker glass



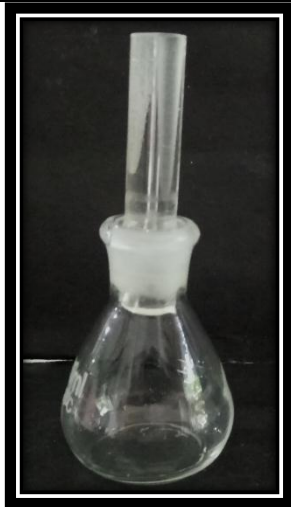
Tabung reaksi



Gelas ukur



Kapas lidi



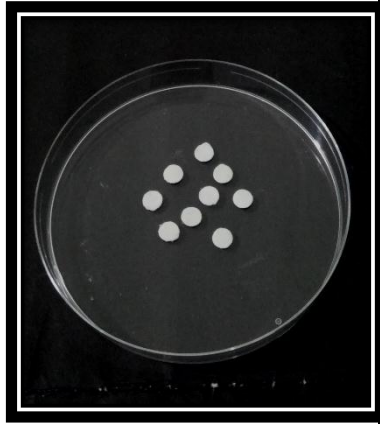
Piknometer



Refraktometer



Vortex



Cakram disk



Pipet tetes



Vial



Inkas



Autoclave



Inkubator

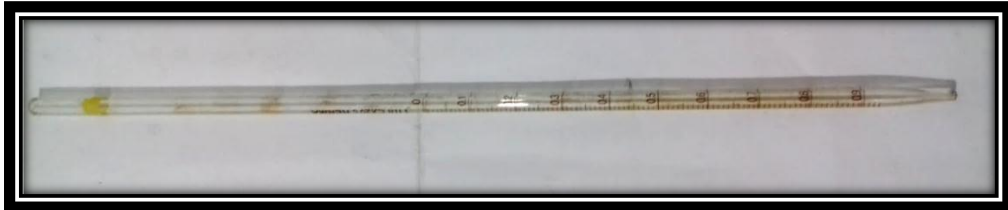


Bunsen



Oven

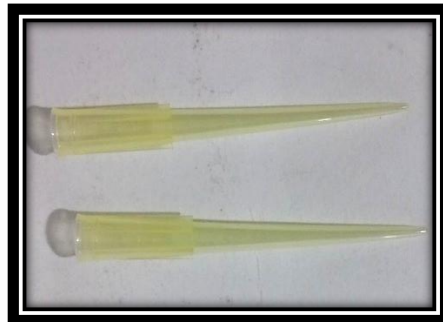
*Glasfirn pump*



Pipet ukur 1 ml



Mikro pipet



Yellow tip



Pinset

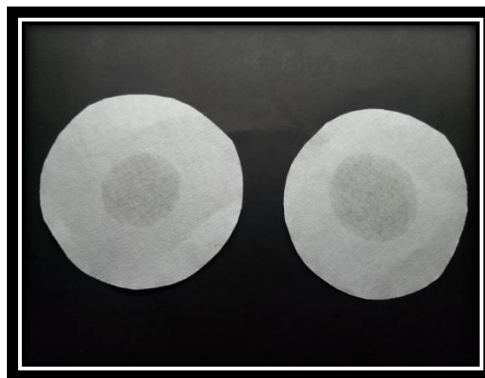
Lampiran 5. Pengamatan organoleptik dan identifikasi minyak atsiri daun kemangi dan daun jeruk purut



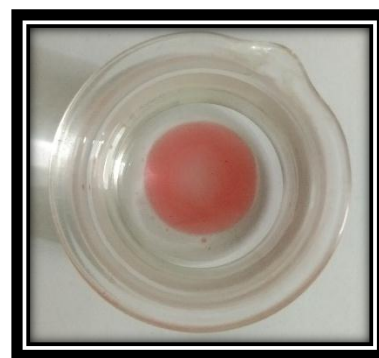
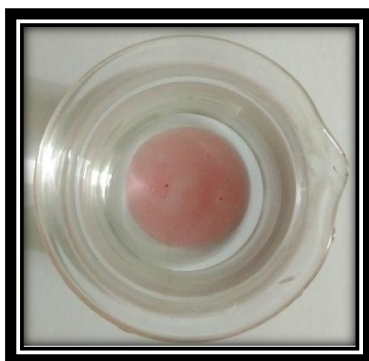
Minyak atsiri daun kemangi



Minyak atsiri daun jeruk purut



Pengujian minyak atsiri di kertas saring

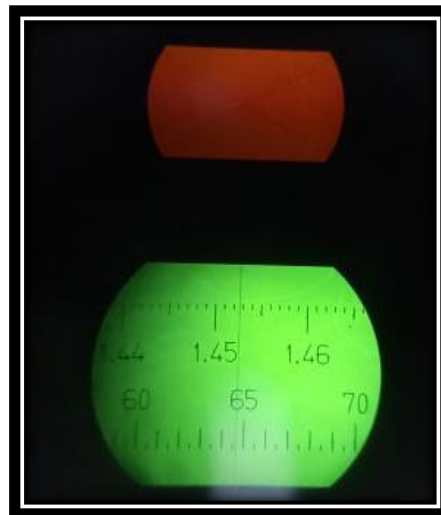


Pengujian penyebaran minyak atsiri daun jeruk purut dan daun kemangi pada permukaan air

Lampiran 6. Penetapan indeks bias minyak atsiri daun kemangi dan minyak atsiri daun jeruk purut

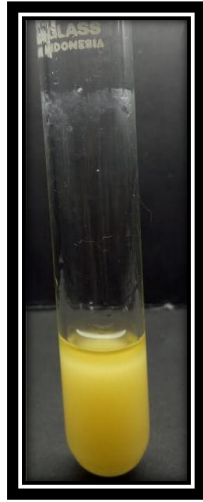


Pengujian indeks bias minyak atsiri daun kemangi

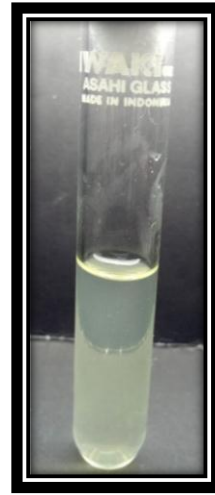


Pengujian indeks bias minyak atsiri daun jeruk purut

Lampiran 7. Penetapan kelarutan dalam alkohol

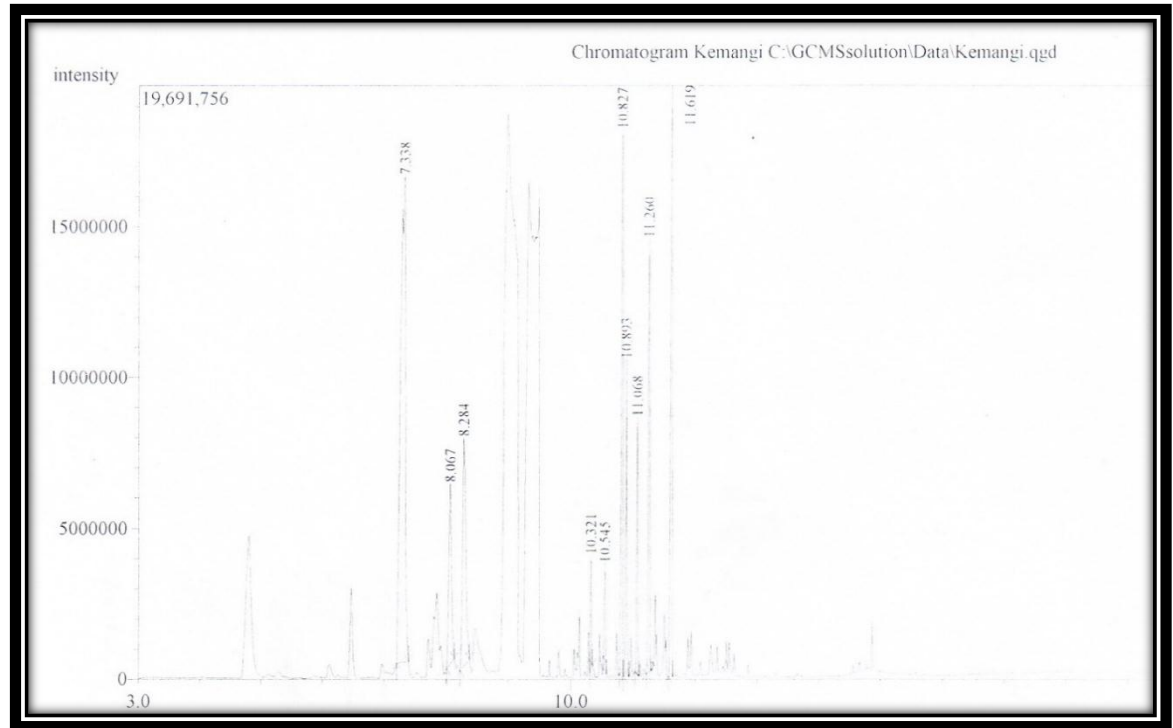


Minyak atsiri daun kemangi



minyak atsiri daun jeruk purut

Lampiran 8. Karakterisasi komponen penyusun minyak atsiri dengan GC-MS



Gambar peak hasil analisis komponen minyak atsiri daun kemangi dengan GCMS

Peak#	R.Time	I.Time	F.Time	Area	Area%	Peak Report TIC		A/H	Mark	Name
						Height	Height%			
1	7.338	7.205	7.400	91594378	35.71	16109837	14.95	5.69		Linalool
2	8.067	8.015	8.135	18890487	7.37	5973848	5.54	3.16		TRANS-CARAN, 4,5-EPOXI-
3	8.284	8.230	8.375	27260665	10.63	7578309	7.03	3.60		TRANS-CARAN, 4,5-EPOXI-
4	10.321	10.300	10.345	3811438	1.49	3759220	3.49	1.01		CIS 3 HEXENYL LACTATE
5	10.545	10.520	10.580	4070653	1.59	3313952	3.08	1.23		3,5-Heptadienal, 2-ethylidene-6-methyl- (CAS)
6	10.827	10.780	10.850	31401363	12.24	18091364	16.79	1.74		trans-Caryophyllene
7	10.893	10.850	10.935	13937247	5.43	10495108	9.74	1.33		.alpha.-Bergamotene
8	11.068	11.035	11.095	9627720	3.75	8498761	7.89	1.13		.alpha.-Humulene
9	11.260	11.220	11.290	23598902	9.20	14338856	13.31	1.65		GERMACRENE-D
10	11.619	11.570	11.645	32288725	12.59	19591804	18.18	1.65		.alpha.-Humulene
				256481578	100.00	107751059	100.00			

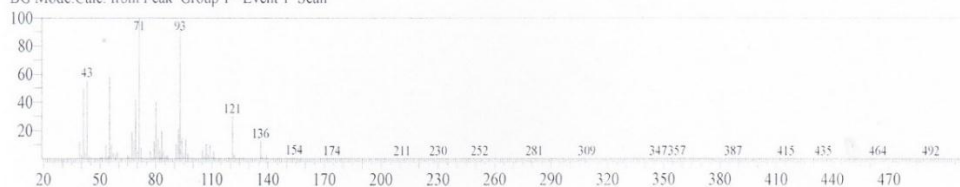
Linalool

<< Target >>

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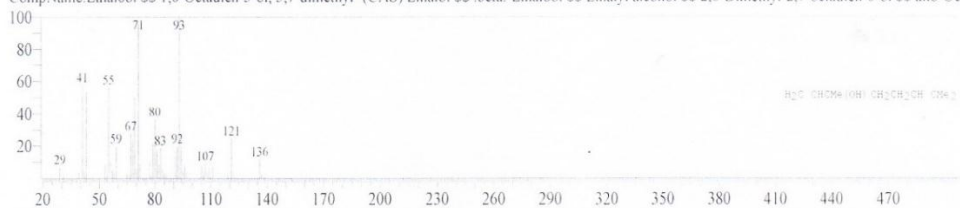
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Hit#:2 Entry:43709 Library:WILEY7.LIB

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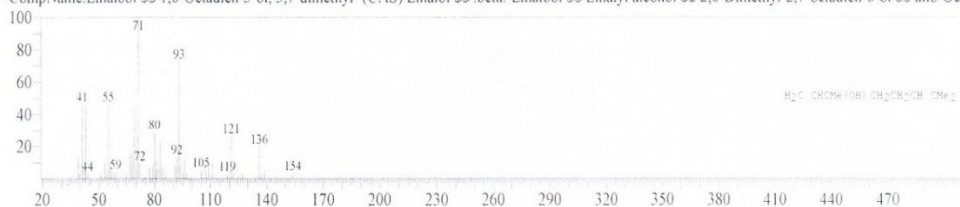
CompName:Linalool SS 1,6-Octadien-3-ol, 3,7-dimethyl- (CAS) Linalol SS .beta.-Linalool SS Linalyl alcohol SS 2,6-Dimethyl-2,7-octadien-6-ol SS allo-Oci



Hit#:3 Entry:43697 Library:WILEY7.LIB

SI:95 Formula:C10 H18 O CAS:78-70-6 MolWeight:154 RetIndex:0

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Hit#:4 Entry:43693 Library:WILEY7.LIB

SI:94 Formula:C10 H18 O CAS:78-70-6 MolWeight:154 RetIndex:0

CompName:Linalool SS 1,6-Octadien-3-ol, 3,7-dimethyl- (CAS) Linalol SS .beta.-Linalool SS Linalyl alcohol SS 2,6-Dimethyl-2,7-octadien-6-ol SS allo-Oci



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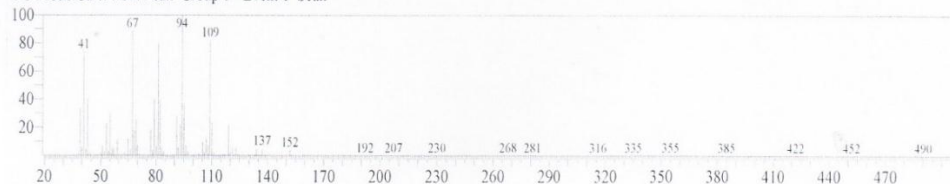
TRANS-CARAN, 4,5-SPOXI-

<< Target >>

Line#:2 R Time:8.065(Scan#:1014) MassPeaks:268

RawMode:Averaged 8.060-8.070(1013-1015) BasePeak:94.10(578807)

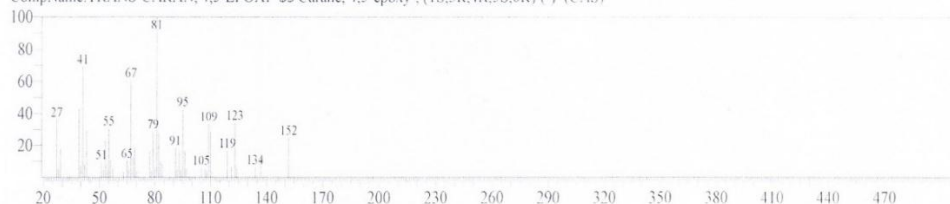
BG Mode:Calc. from Peak Group 1 - Event 1 Scan



Hit#:1 Entry:40345 Library:WILEY7.LIB

SI:88 Formula:C10 H16 O CAS:6909-20-2 MolWeight:152 RetIndex:0

CompName:TRANS-CARAN, 4,5-EPOXI- SS Carane, 4,5-epoxy-, (1S,3R,4R,5S,6R)-(-) (CAS)



Hit#:2 Entry:41339 Library:WILEY7.LIB

SI:86 Formula:C10 H16 O CAS:473-67-6 MolWeight:152 RetIndex:0

CompName:Verbenol SS 4,6,6-Trimethylbicyclo-[3.1.1]hept-3-en-2-ol SS Bicyclo[3.1.1]hept-3-en-2-ol, 4,6,6-trimethyl- SS d-Verbenol SS Berbenol SS 2-Pi



Hit#:3 Entry:41027 Library:WILEY7.LIB

SI:86 Formula:C10 H16 O CAS:23963-70-4 MolWeight:152 RetIndex:0

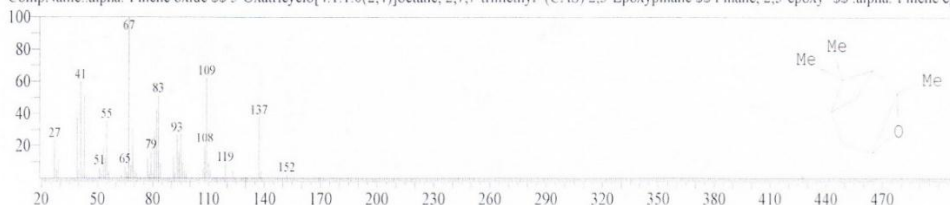
CompName:PELLANDRAL SS p-menth-1-en-7-al SS 1-Cyclohexene-1-carboxaldehyde, 4-(1-methylethyl)-, (S)- (CAS) 1-Cyclohexene-1-carboxaldehyde,



Hit#:4 Entry:41292 Library:WILEY7.LIB

SI:85 Formula:C10 H16 O CAS:1686-14-2 MolWeight:152 RetIndex:0

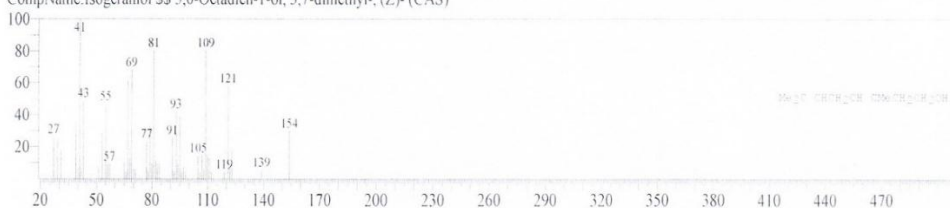
CompName:alpha-Pinene oxide SS 3-Oxatricyclo[4.1.1.0(2,4)]octane, 2,7,7-trimethyl- (CAS) 2,3-Epoxy-pinane SS Pinane, 2,3-epoxy- SS alpha-Pinene epo



Hit#:5 Entry:43683 Library:WILEY7.LIB

SI:85 Formula:C10 H18 O CAS:5944-20-7 MolWeight:154 RetIndex:0

CompName:Isogeraniol SS 3,6-Octadien-1-ol, 3,7-dimethyl-, (Z)- (CAS)



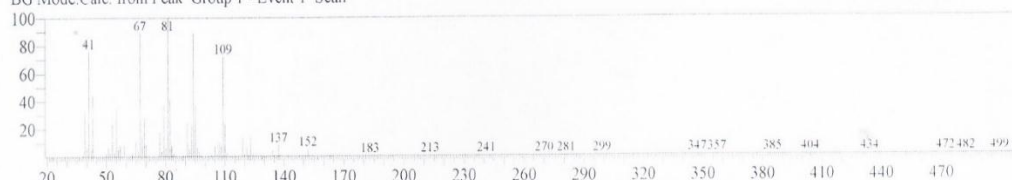
TRANS-CARAN, 4,5-SPOXI-

<< Target >>

Line#:3 R.Time:8.285(Scan#:1058) MassPeaks:283

RawMode:Averaged 8.280-8.290(1057-1059) BasePeak:81.10(728074)

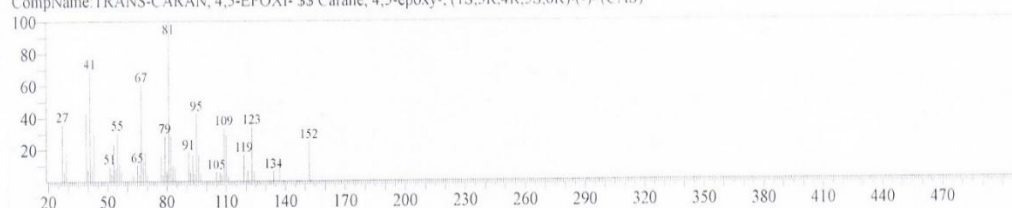
BG Mode:Calc. from Peak Group 1 - Event 1 Scan



Hit#:1 Entry:40345 Library:WILEY7.LIB

SI:90 Formula:C10 H16 O CAS:6909-20-2 MolWeight:152 RetIndex:0

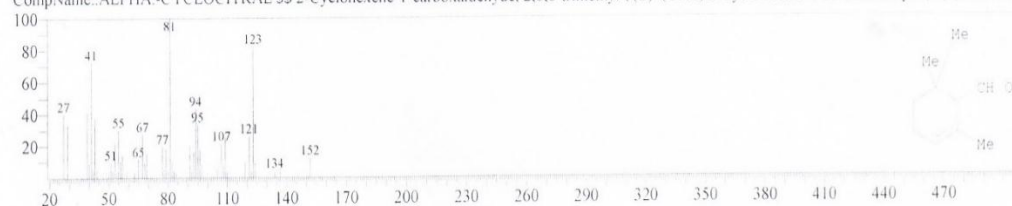
CompName:TRANS-CARAN, 4,5-EPOXI- \$\$ Carane, 4,5-epoxy-, (1S,3R,4R,5S,6R)-(-)- (CAS)



Hit#:2 Entry:40049 Library:WILEY7.LIB

SI:87 Formula:C10 H16 O CAS:14505-74-9 MolWeight:152 RetIndex:0

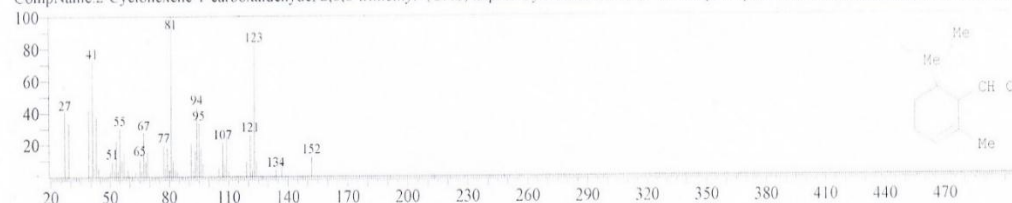
CompName:ALPHA-CYCLOCITRAL \$\$ 2-Cyclohexene-1-carboxaldehyde, 2,6,6-trimethyl-, (S)- (CAS) 2-Cyclohexene-1-carboxaldehyde, 2,6,6-trimethyl-



Hit#:3 Entry:41035 Library:WILEY7.LIB

SI:87 Formula:C10 H16 O CAS:432-24-6 MolWeight:152 RetIndex:0

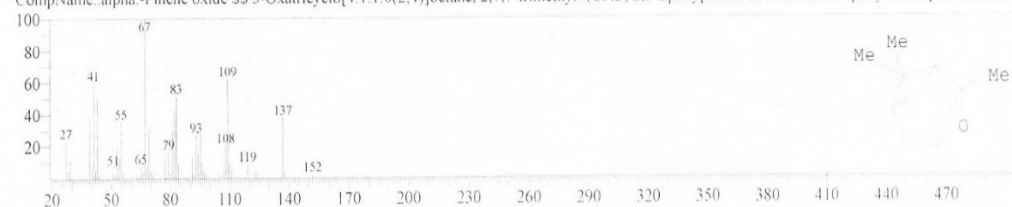
CompName:2-Cyclohexene-1-carboxaldehyde, 2,6,6-trimethyl-, (S)- alpha-Cyclocitral \$\$ 2,6,6-Trimethyl-2-cyclohexene-1-carboxaldehyde \$\$ Filipendul



Hit#:4 Entry:41292 Library:WILEY7.LIB

SI:86 Formula:C10 H16 O CAS:1686-14-2 MolWeight:152 RetIndex:0

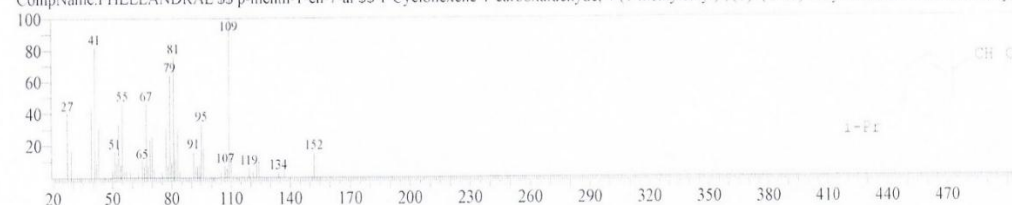
CompName:alpha-Pinene oxide \$\$ 3-Oxatricyclo[4.1.1.0(2,4)]octane, 2,7,7-trimethyl-, (S)- 2,3-Epoxy-pinane \$\$ Pinane, 2,3-epoxy- \$\$ alpha-Pinene epi



Hit#:5 Entry:41027 Library:WILEY7.LIB

SI:86 Formula:C10 H16 O CAS:23963-70-4 MolWeight:152 RetIndex:0

CompName:PHELLANDRAL \$\$ p-menth-1-en-7-al \$\$ 1-Cyclohexene-1-carboxaldehyde, 4-(1-methylethyl)-, (S)- (CAS) 1-Cyclohexene-1-carboxaldehyde,



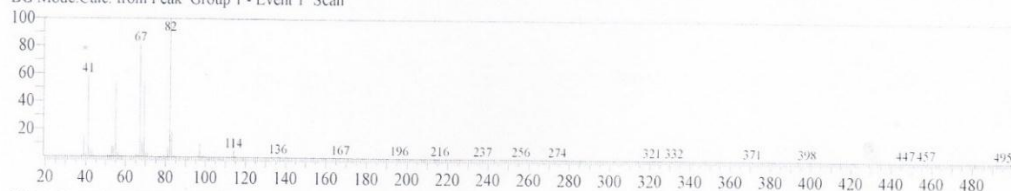
CIS 3 HEXENYL LACTATE

<< Target >>

Line# 4 R.Time: 10.320 (Scan#: 1465) MassPeaks: 244

RawMode: Averaged 10.315-10.325 (1464-1466) BasePeak: 82.10 (690874)

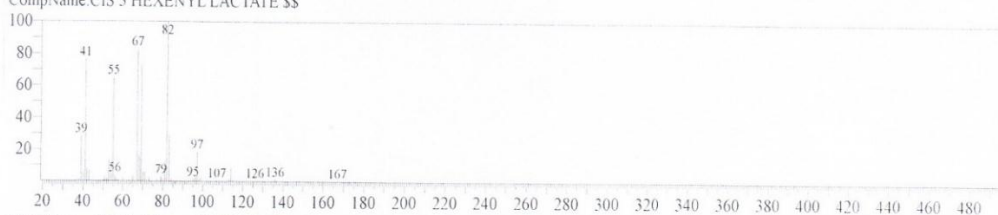
BG Mode: Calc. from Peak Group 1 - Event 1 Scan



Hit# 1 Entry: 62379 Library: WILEY7.LIB

SI: 93 Formula: C₉H₁₆O₃ CAS: 61931-81-5 MolWeight: 172 RetIndex: 0

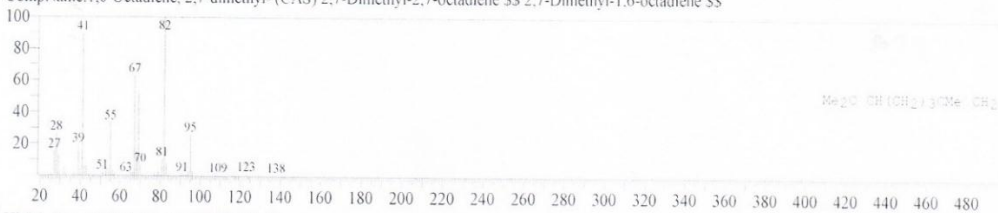
CompName: CIS 3 HEXENYL LACTATE \$\$



Hit# 2 Entry: 28111 Library: WILEY7.LIB

SI: 89 Formula: C₁₀H₁₈ CAS: 40195-09-3 MolWeight: 138 RetIndex: 0

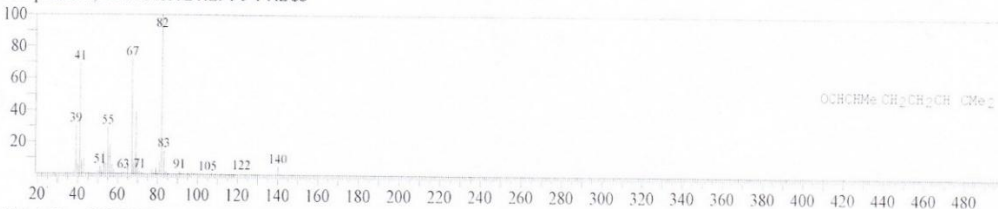
CompName: 1,6-Octadiene, 2,7-dimethyl- (CAS) 2,7-Dimethyl-2,7-octadiene \$\$ 2,7-Dimethyl-1,6-octadiene \$\$



Hit# 3 Entry: 29214 Library: WILEY7.LIB

SI: 89 Formula: C₉H₁₆O CAS: 106-72-9 MolWeight: 140 RetIndex: 0

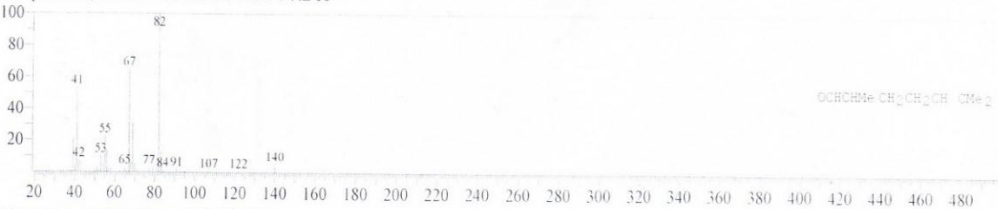
CompName: 2,6-DIMETHYL HEPT-5-1-AL \$\$



Hit# 4 Entry: 29212 Library: WILEY7.LIB

SI: 89 Formula: C₉H₁₆O CAS: 106-72-9 MolWeight: 140 RetIndex: 0

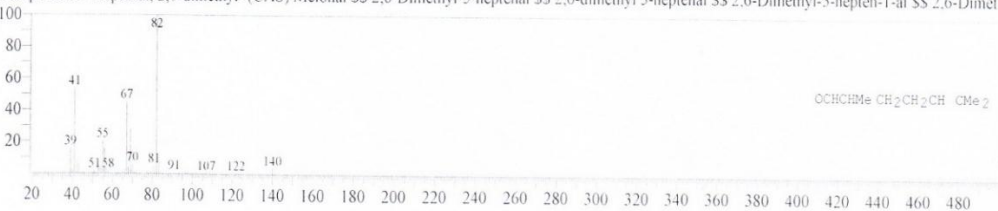
CompName: 2,6-DIMETHYL HEPT-5-EN-1-AL \$\$



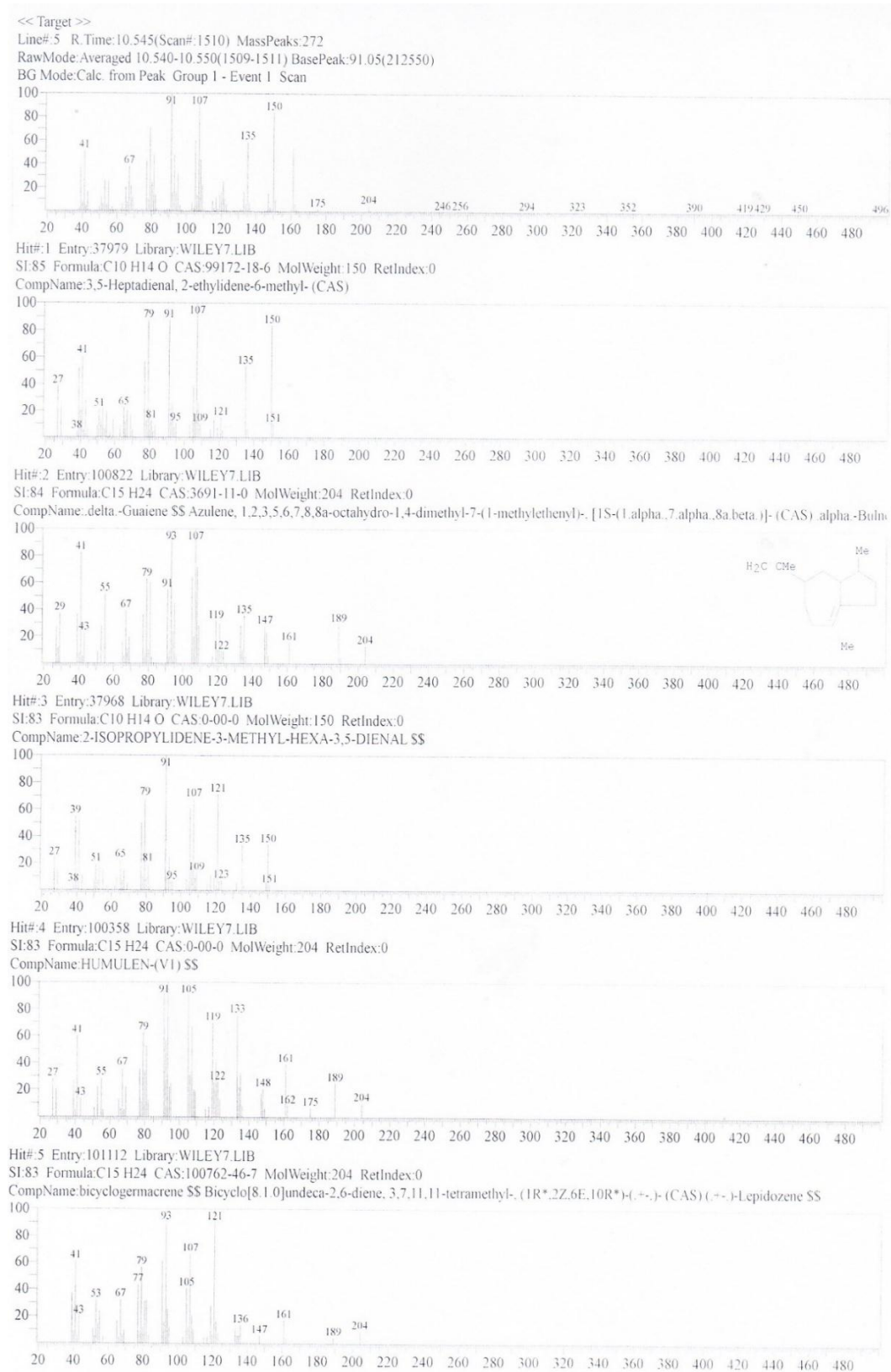
Hit# 5 Entry: 29797 Library: WILEY7.LIB

SI: 88 Formula: C₉H₁₆O CAS: 106-72-9 MolWeight: 140 RetIndex: 0

CompName: 5-Heptenal, 2,6-dimethyl- (CAS) Melonal \$\$ 2,6-Dimethyl-5-heptenal \$\$ 2,6-dimethyl-5-heptenal \$\$ 2,6-Dimethyl-5-hepten-1-al \$\$ 2,6-Dimethyl-



3,5-Heptadienal, 2-ethylidene-6-methyl-(CAS)



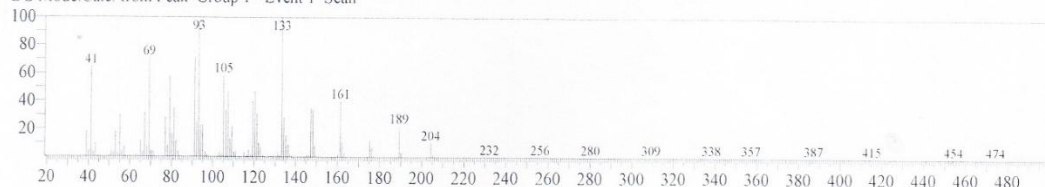
trans-Caryophyllene

<< Target >>

Line#6 R.Time:10.825(Scan#:1566) MassPeaks:302

RawMode:Averaged 10.820-10.830(1565-1567) BasePeak:133.10(1227094)

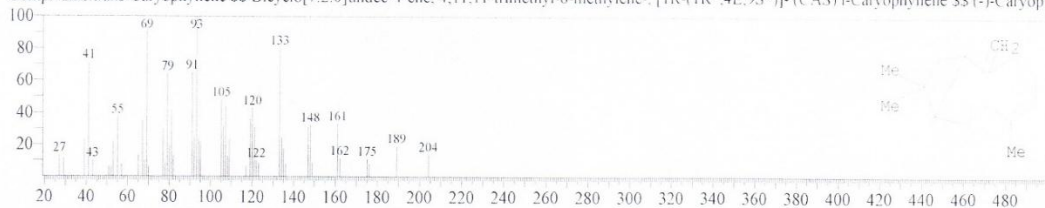
BG Mode:Calc. from Peak Group 1 - Event 1 Scan



Hit#1 Entry:100782 Library:WILEY7.LIB

SI:96 Formula:C15 H24 CAS:87-44-5 MolWeight:204 RetIndex:0

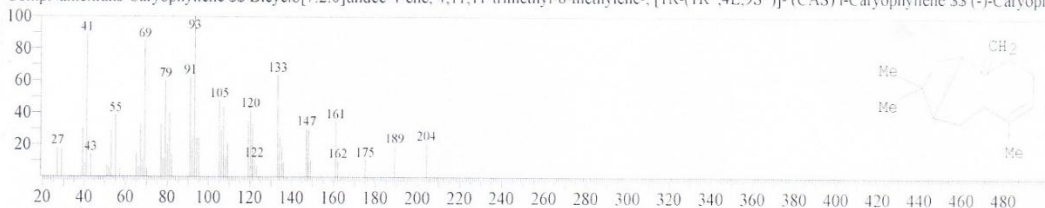
CompName:trans-Caryophyllene SS Bicyclo[7.2.0]undec-4-ene, 4,11,11-trimethyl-8-methylene-, [1R-(1R*,4E,9S*)]-(CAS) l-Caryophyllene SS (-)-Caryoph



Hit#2 Entry:100787 Library:WILEY7.LIB

SI:95 Formula:C15 H24 CAS:87-44-5 MolWeight:204 RetIndex:0

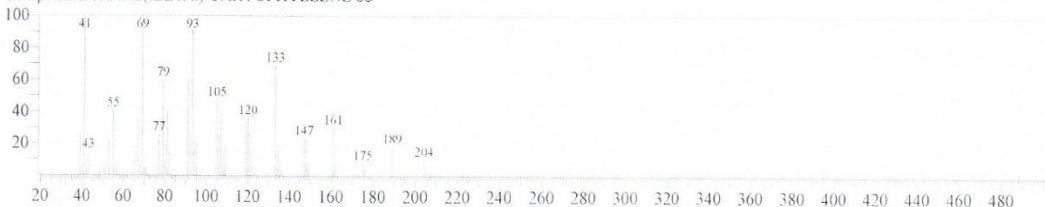
CompName:trans-Caryophyllene SS Bicyclo[7.2.0]undec-4-ene, 4,11,11-trimethyl-8-methylene-, [1R-(1R*,4E,9S*)]-(CAS) l-Caryophyllene SS (-)-Caryoph



Hit#3 Entry:100327 Library:WILEY7.LIB

SI:94 Formula:C15 H24 CAS:0-00-0 MolWeight:204 RetIndex:0

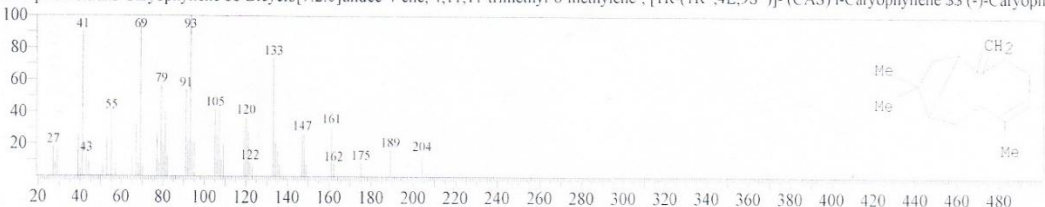
CompName:TRANS(BETA)-CARYOPHYLLENE SS



Hit#4 Entry:100776 Library:WILEY7.LIB

SI:94 Formula:C15 H24 CAS:87-44-5 MolWeight:204 RetIndex:0

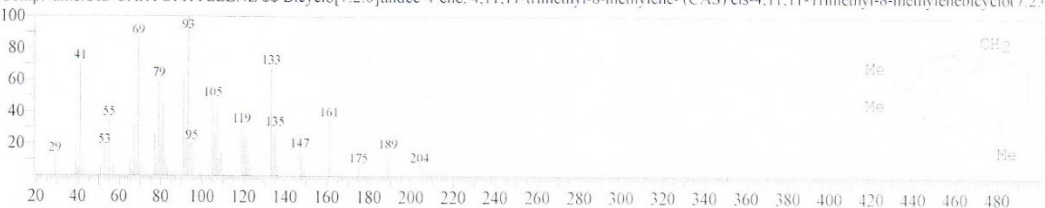
CompName:trans-Caryophyllene SS Bicyclo[7.2.0]undec-4-ene, 4,11,11-trimethyl-8-methylene-, [1R-(1R*,4E,9S*)]-(CAS) l-Caryophyllene SS (-)-Caryoph



Hit#5 Entry:100771 Library:WILEY7.LIB

SI:94 Formula:C15 H24 CAS:13877-93-5 MolWeight:204 RetIndex:0

CompName:CIS-CARYOPHYLLENE SS Bicyclo[7.2.0]undec-4-ene, 4,11,11-trimethyl-8-methylene-, (CAS) cis-4,11,11-Trimethyl-8-methylenebicyclo[7.2.0]



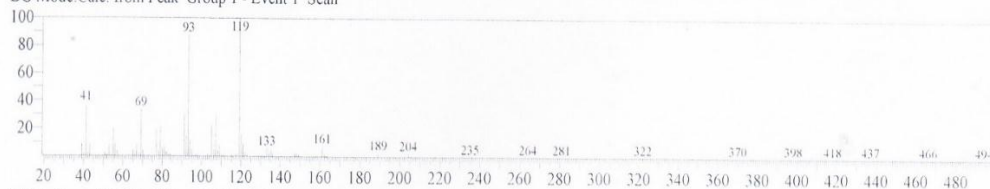
.alpha.-Bergamotene

<< Target >>

Line#:7 R.Time:10.895(Scan#:1580) MassPeaks:275

RawMode:Averaged 10.890-10.900(1579-1581) BasePeak:119.10(1443167)

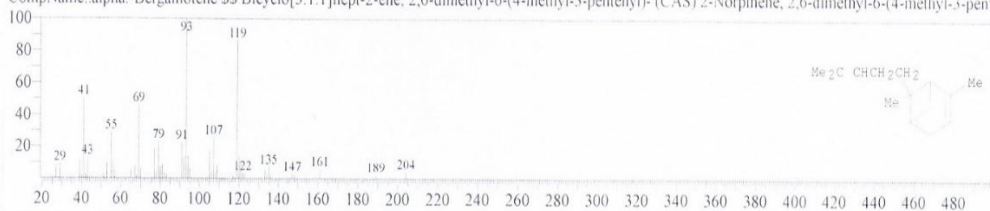
BG Mode:Calc. from Peak Group 1 - Event 1 Scan



Hit#:1 Entry:100220 Library:WILEY7.LIB

SI:95 Formula:C15 H24 CAS:17699-05-7 MolWeight:204 RetIndex:0

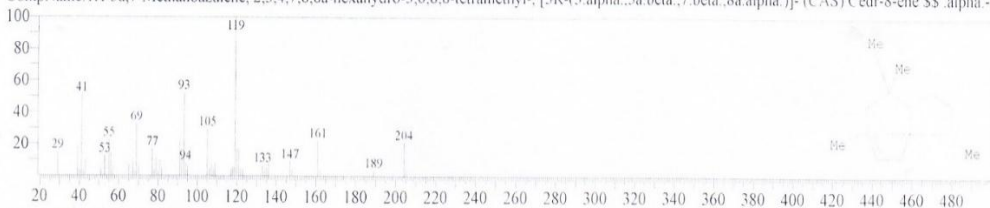
CompName:.alpha.-Bergamotene SS Bicyclo[3.1.1]hept-2-ene, 2,6-dimethyl-6-(4-methyl-3-pentenyl)- (CAS) 2-Norpinene, 2,6-dimethyl-6-(4-methyl-3-pent



Hit#:2 Entry:100831 Library:WILEY7.LIB

SI:90 Formula:C15 H24 CAS:469-61-4 MolWeight:204 RetIndex:0

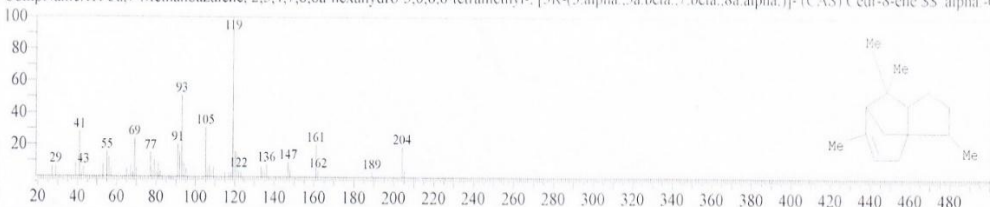
CompName:1H-3a,7-Methanoazulene, 2,3,4,7,8,8a-hexahydro-3,6,8,8-tetramethyl-, [3R-(3.alpha.,3a.beta.,7.beta.,8a.alpha.)]- (CAS) Cedr-8-ene SS .alpha.-C



Hit#:3 Entry:100826 Library:WILEY7.LIB

SI:90 Formula:C15 H24 CAS:469-61-4 MolWeight:204 RetIndex:0

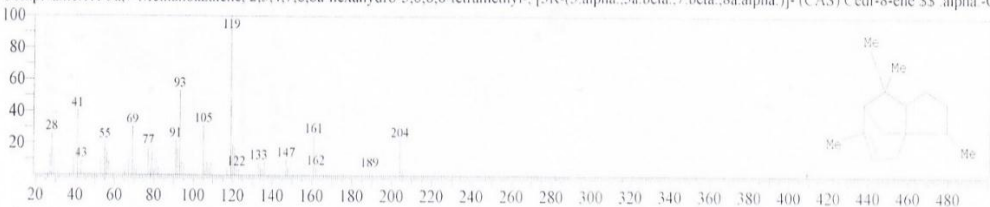
CompName:1H-3a,7-Methanoazulene, 2,3,4,7,8,8a-hexahydro-3,6,8,8-tetramethyl-, [3R-(3.alpha.,3a.beta.,7.beta.,8a.alpha.)]- (CAS) Cedr-8-ene SS .alpha.-C



Hit#:4 Entry:100828 Library:WILEY7.LIB

SI:90 Formula:C15 H24 CAS:469-61-4 MolWeight:204 RetIndex:0

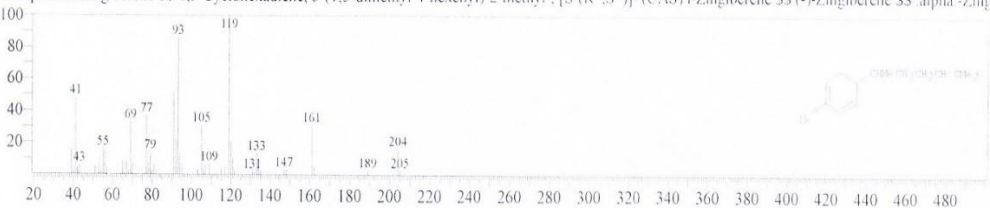
CompName:1H-3a,7-Methanoazulene, 2,3,4,7,8,8a-hexahydro-3,6,8,8-tetramethyl-, [3R-(3.alpha.,3a.beta.,7.beta.,8a.alpha.)]- (CAS) Cedr-8-ene SS .alpha.-C



Hit#:5 Entry:100696 Library:WILEY7.LIB

SI:90 Formula:C15 H24 CAS:495-60-3 MolWeight:204 RetIndex:0

CompName:Zingiberene SS 1,3-Cyclohexadiene, 5-(1,5-dimethyl-4-hexenyl)-2-methyl-, [S-(R*,S*)]- (CAS) l-Zingiberene SS (-)-Zingiberene SS .alpha.-Zing



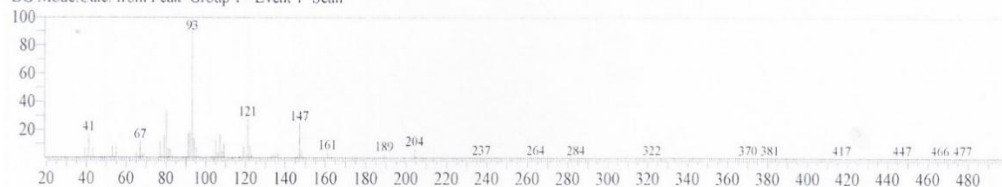
.alpha.-Humulene

<< Target >>

Line# 8 R.Time: 11.070 (Scan#: 1615) MassPeaks: 288

RawMode: Averaged 11.065-11.075 (1614-1616) BasePeak: 93.10 (1487483)

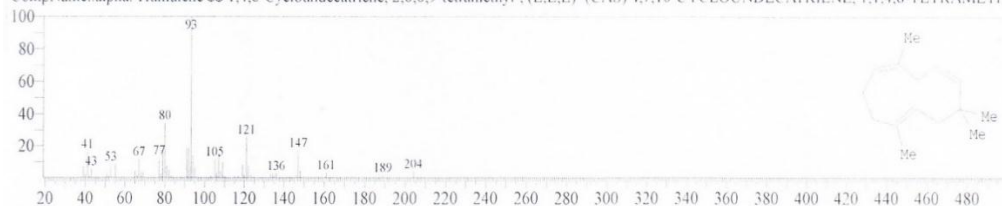
BG Mode: Calc. from Peak Group 1 - Event 1 Scan



Hit# 1 Entry: 100734 Library: WILEY7.LIB

SI: 98 Formula: C₁₅H₂₄ CAS: 6753-98-6 MolWeight: 204 RetIndex: 0

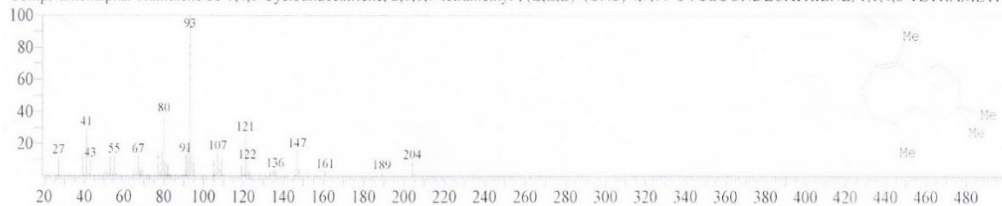
CompName: .alpha.-Humulene SS 1,4,8-Cycloundecatriene, 2,6,6,9-tetramethyl-, (E,E,E)- (CAS) 4,7,10-CYCLOUNDECATRIENE, 1,1,4,8-TETRAMETH



Hit# 2 Entry: 100736 Library: WILEY7.LIB

SI: 95 Formula: C₁₅H₂₄ CAS: 6753-98-6 MolWeight: 204 RetIndex: 0

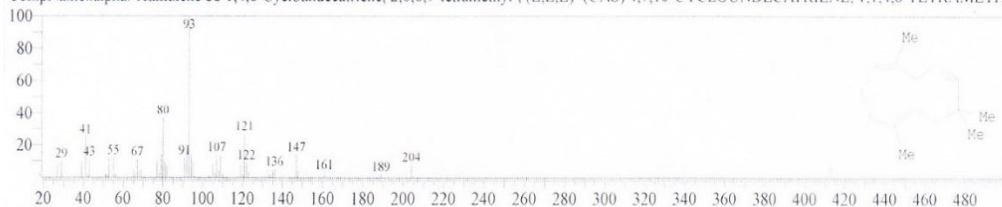
CompName: .alpha.-Humulene SS 1,4,8-Cycloundecatriene, 2,6,6,9-tetramethyl-, (E,E,E)- (CAS) 4,7,10-CYCLOUNDECATRIENE, 1,1,4,8-TETRAMETH



Hit# 3 Entry: 100740 Library: WILEY7.LIB

SI: 95 Formula: C₁₅H₂₄ CAS: 6753-98-6 MolWeight: 204 RetIndex: 0

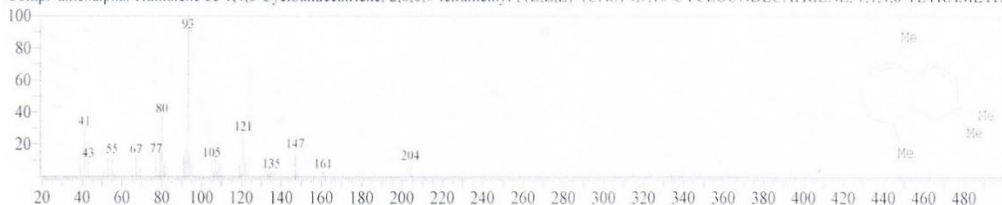
CompName: .alpha.-Humulene SS 1,4,8-Cycloundecatriene, 2,6,6,9-tetramethyl-, (E,E,E)- (CAS) 4,7,10-CYCLOUNDECATRIENE, 1,1,4,8-TETRAMETH



Hit# 4 Entry: 100745 Library: WILEY7.LIB

SI: 95 Formula: C₁₅H₂₄ CAS: 6753-98-6 MolWeight: 204 RetIndex: 0

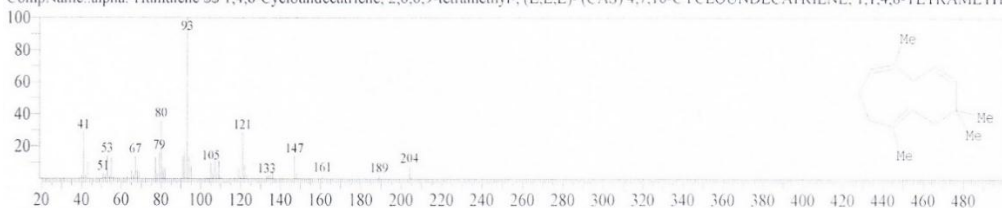
CompName: .alpha.-Humulene SS 1,4,8-Cycloundecatriene, 2,6,6,9-tetramethyl-, (E,E,E)- (CAS) 4,7,10-CYCLOUNDECATRIENE, 1,1,4,8-TETRAMETH



Hit# 5 Entry: 100739 Library: WILEY7.LIB

SI: 95 Formula: C₁₅H₂₄ CAS: 6753-98-6 MolWeight: 204 RetIndex: 0

CompName: .alpha.-Humulene SS 1,4,8-Cycloundecatriene, 2,6,6,9-tetramethyl-, (E,E,E)- (CAS) 4,7,10-CYCLOUNDECATRIENE, 1,1,4,8-TETRAMETH



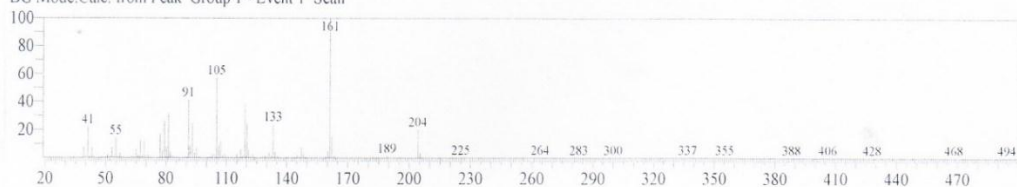
GERMACRENE-D

<< Target >>

Line# 9 R.Time: 11.260 (Scan#: 1653) MassPeaks: 313

RawMode: Averaged 11.255-11.265 (1652-1654) BasePeak: 161.15 (2059219)

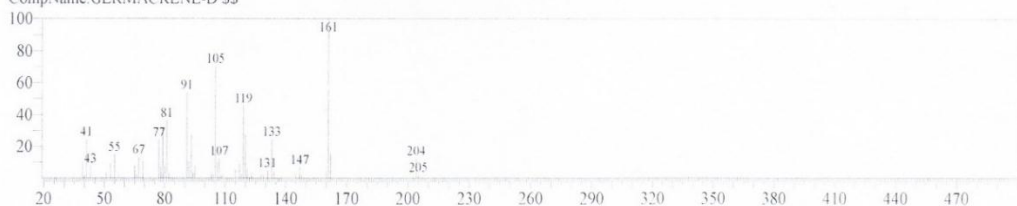
BG Mode: Calc. from Peak Group 1 - Event 1 Scan



Hit# 1 Entry: 100272 Library: WILEY7.LIB

SI: 95 Formula: C₁₅H₂₄ CAS: 23986-74-5 MolWeight: 204 RetIndex: 0

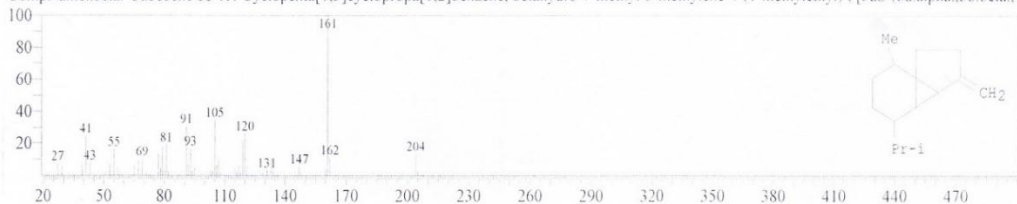
CompName: GERMARENE-D \$



Hit# 2 Entry: 101072 Library: WILEY7.LIB

SI: 92 Formula: C₁₅H₂₄ CAS: 13744-15-5 MolWeight: 204 RetIndex: 0

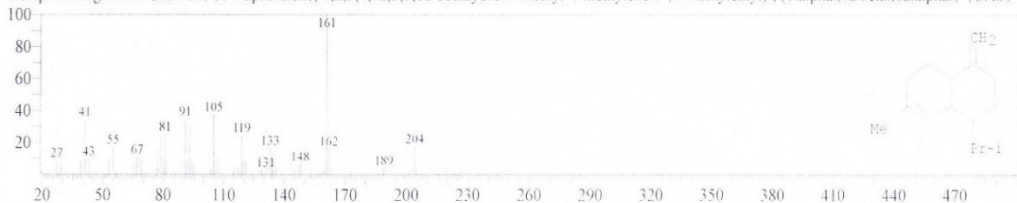
CompName: .beta.-Cubebene \$ 1H-Cyclopenta[1,3]cyclopropa[1,2]benzene, octahydro-7-methyl-3-methylene-4-(1-methylethyl)-, [3aS-(3a.alpha.,3b.beta.,4



Hit# 3 Entry: 100880 Library: WILEY7.LIB

SI: 91 Formula: C₁₅H₂₄ CAS: 39029-41-9 MolWeight: 204 RetIndex: 0

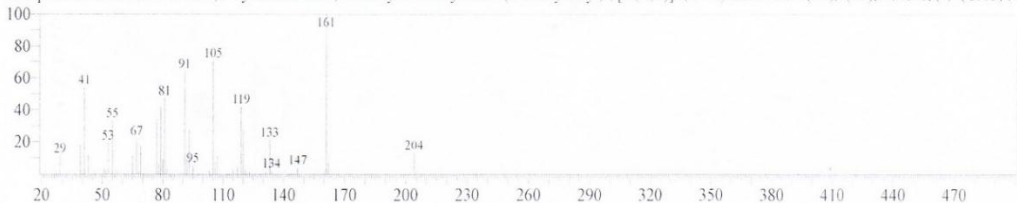
CompName: .gamma.-Cadinene \$ Naphthalene, 1,2,3,4,4a,5,6,8a-octahydro-7-methyl-4-methylene-1-(1-methylethyl)-, (1.alpha.,4a.beta.,8a.alpha.)- (CAS)



Hit# 4 Entry: 101086 Library: WILEY7.LIB

SI: 90 Formula: C₁₅H₂₄ CAS: 23986-74-5 MolWeight: 204 RetIndex: 0

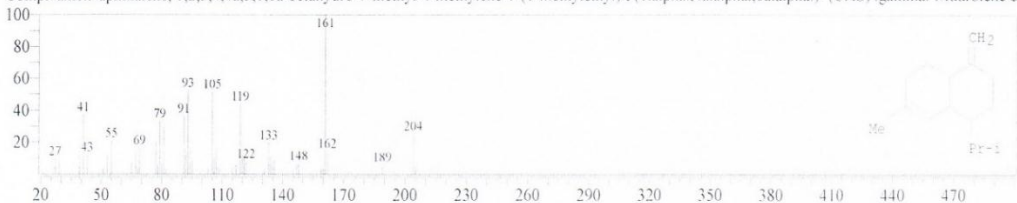
CompName: Germacrene D \$ 1,6-Cyclodecadiene, 1-methyl-5-methylene-8-(1-methylethyl)-, [s-(E,E)]- (CAS) Germacrene-1(10),4(15),5-triene, (-)- (CAS) (-



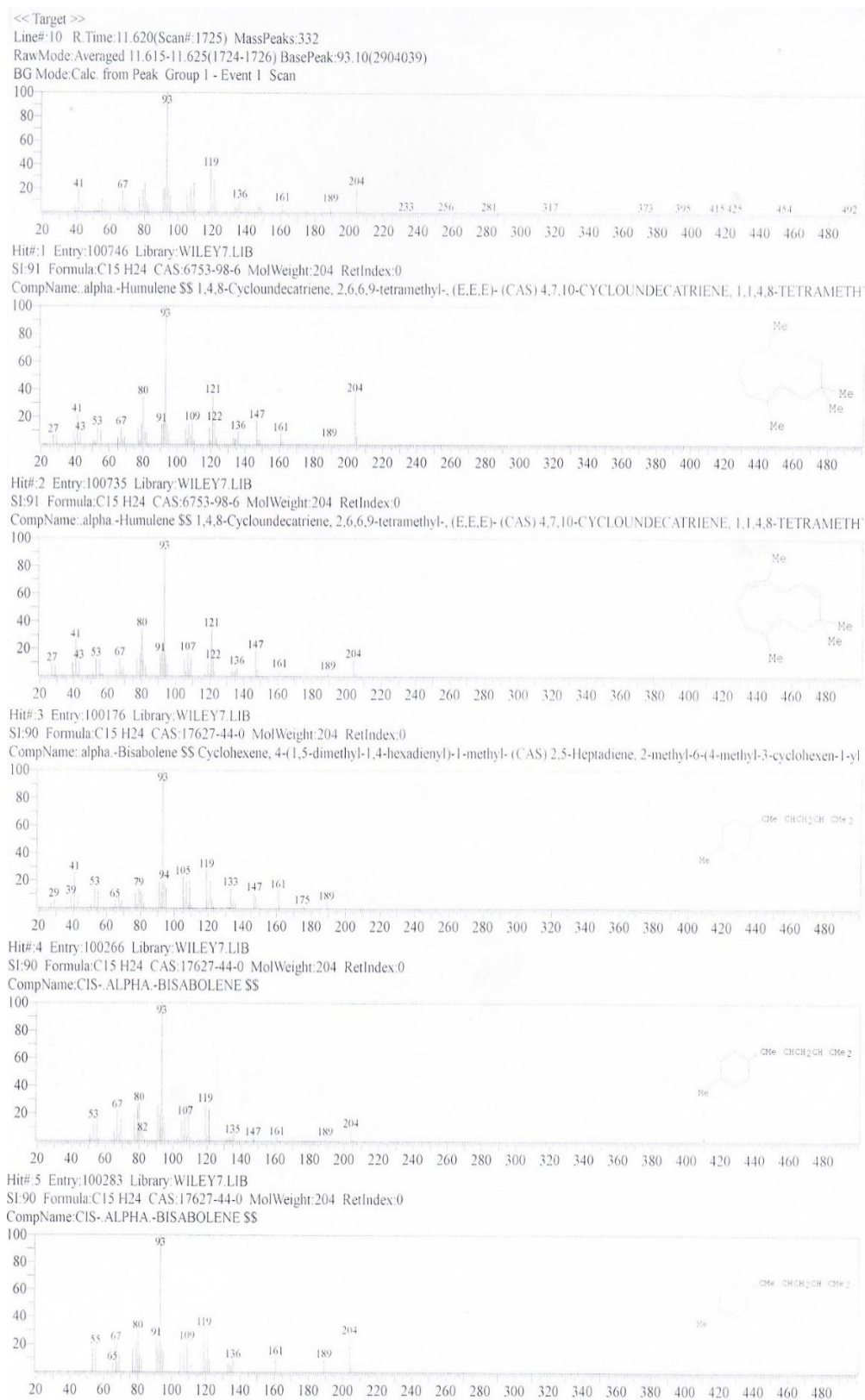
Hit# 5 Entry: 100949 Library: WILEY7.LIB

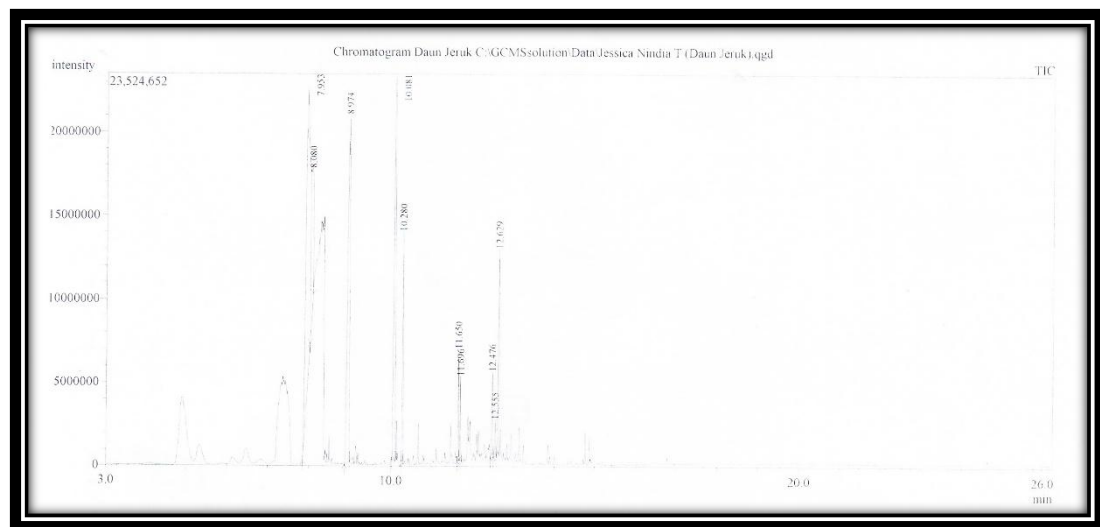
SI: 90 Formula: C₁₅H₂₄ CAS: 30021-74-0 MolWeight: 204 RetIndex: 0

CompName: Naphthalene, 1,2,3,4,4a,5,6,8a-octahydro-7-methyl-4-methylene-1-(1-methylethyl)-, (1.alpha.,4a.alpha.,8a.alpha.)- (CAS) .gamma.-Muurenone \$



.alpha.-humulene





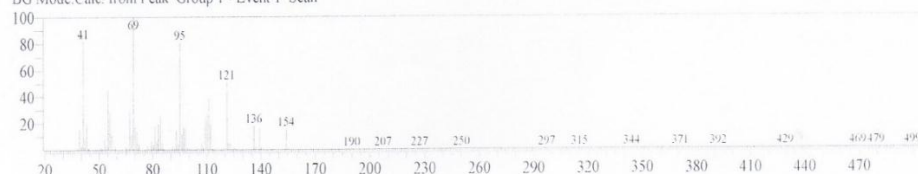
Gambar peak hasil analisis komponen minyak atsiri daun jeruk purut dengan GC-MS

Peak#	R.Time	I.Time	F.Time	Area	Area%	Peak Report TIC		A/H	Mark	Name
						Height	Height%			
1	7.953	7.860	8.025	121802294	34.23	18277397	15.77	6.66		CITRONELLA
2	8.080	8.025	8.095	35091131	9.86	8136588	7.02	4.31	V	CITRONELLA
3	8.974	8.875	9.000	78085900	21.95	20850273	17.99	3.75		beta-Citronellol
4	10.081	10.025	10.115	62589136	17.59	23175217	19.99	2.70		Citronellyl acetate
5	10.280	10.240	10.305	15532270	4.37	13957659	12.04	1.11		NERYL ACETATE
6	11.650	11.620	11.670	7473584	2.10	6688104	5.77	1.12		Elemol
7	11.696	11.675	11.735	5834485	1.64	5038886	4.35	1.16		Nerolidol
8	12.476	12.440	12.510	7655287	2.15	5152180	4.44	1.49		LONGIVERBENON (VULGARON B)
9	12.555	12.510	12.585	3179672	0.89	2216599	1.91	1.43	V	LONGIVERBENON (VULGARON B)
10	12.629	12.590	12.660	18567116	5.22	12421306	10.72	1.49		2(3H)-NAPHTHALENONE, 4,4A,5,6,7,8-HEXAHYDRO-4A,5-DIME
				355810875	100.00	115914209	100.00			

CITRONELLA

<< Target >>

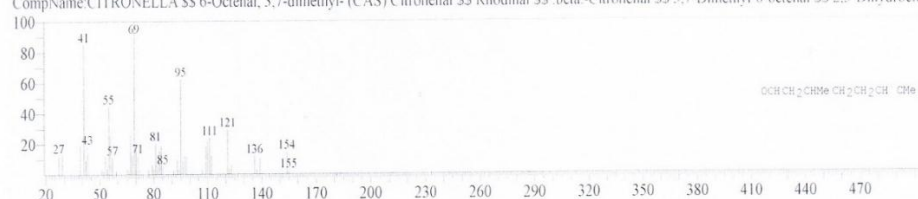
Line#:1 R.Time:7.955(Scan#:992) MassPeaks:331
 RawMode:Averaged 7.950-7.960(991-993) BasePeak:69.10(1363748)
 BG Mode:Calc. from Peak Group 1 - Event 1 Scan



Hit#:1 Entry:43607 Library:WILEY7.LIB

SI:95 Formula:C10 H18 O CAS:106-23-0 MolWeight:154 RetIndex:0

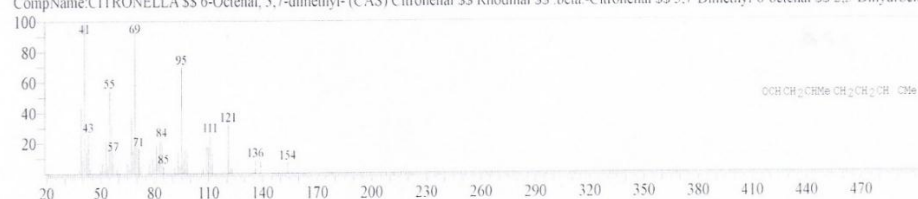
CompName:CITRONELLA SS 6-Octenal, 3,7-dimethyl- (CAS) Citronellal SS Rhodinal SS beta-Citronellal SS 3,7-Dimethyl-6-octenal SS 2,3-Dihydrocitra



Hit#:2 Entry:43604 Library:WILEY7.LIB

SI:92 Formula:C10 H18 O CAS:106-23-0 MolWeight:154 RetIndex:0

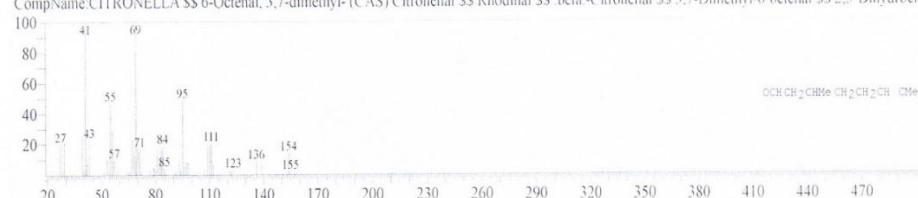
CompName:CITRONELLA SS 6-Octenal, 3,7-dimethyl- (CAS) Citronellal SS Rhodinal SS beta-Citronellal SS 3,7-Dimethyl-6-octenal SS 2,3-Dihydrocitra



Hit#:3 Entry:43602 Library:WILEY7.LIB

SI:91 Formula:C10 H18 O CAS:106-23-0 MolWeight:154 RetIndex:0

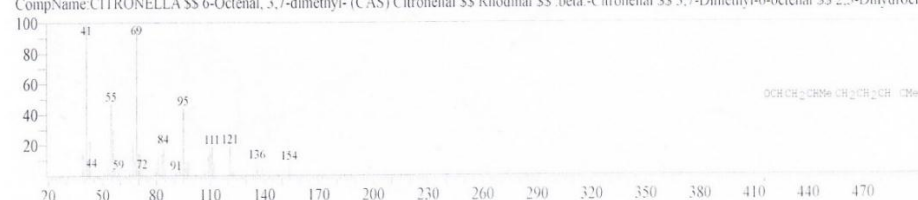
CompName:CITRONELLA SS 6-Octenal, 3,7-dimethyl- (CAS) Citronellal SS Rhodinal SS beta-Citronellal SS 3,7-Dimethyl-6-octenal SS 2,3-Dihydrocitra



Hit#:4 Entry:43609 Library:WILEY7.LIB

SI:91 Formula:C10 H18 O CAS:106-23-0 MolWeight:154 RetIndex:0

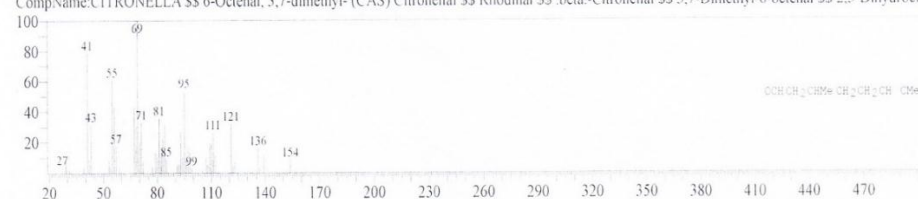
CompName:CITRONELLA SS 6-Octenal, 3,7-dimethyl- (CAS) Citronellal SS Rhodinal SS beta-Citronellal SS 3,7-Dimethyl-6-octenal SS 2,3-Dihydrocitra



Hit#:5 Entry:43617 Library:WILEY7.LIB

SI:91 Formula:C10 H18 O CAS:106-23-0 MolWeight:154 RetIndex:0

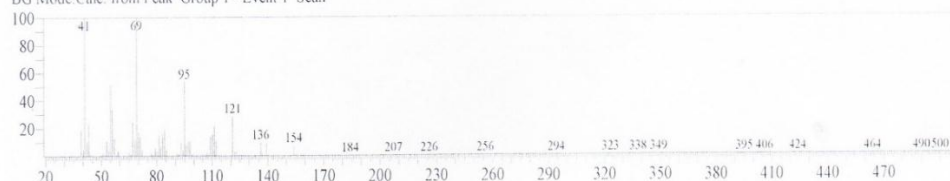
CompName:CITRONELLA SS 6-Octenal, 3,7-dimethyl- (CAS) Citronellal SS Rhodinal SS beta-Citronellal SS 3,7-Dimethyl-6-octenal SS 2,3-Dihydrocitra



CITRONELLA

<< Target >>

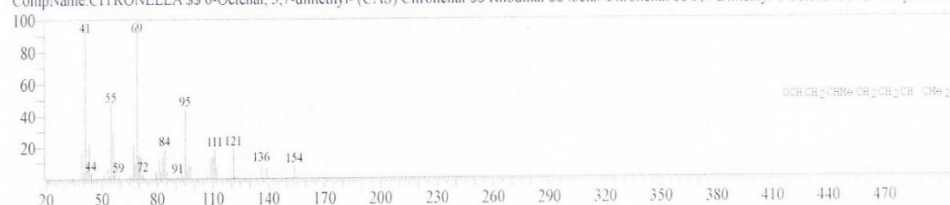
Line#:2 R.Time:8.080(Scan#:1017) MassPeaks:306
 RawMode:Averaged 8.075-8.085(1016-1018) BasePeak:41.05(772180)
 BG Mode Calc. from Peak Group 1 - Event 1 Scan



Hit#:1 Entry:43609 Library:WILEY7.LIB

SI:97 Formula:C10 H18 O CAS:106-23-0 MolWeight:154 RetIndex:0

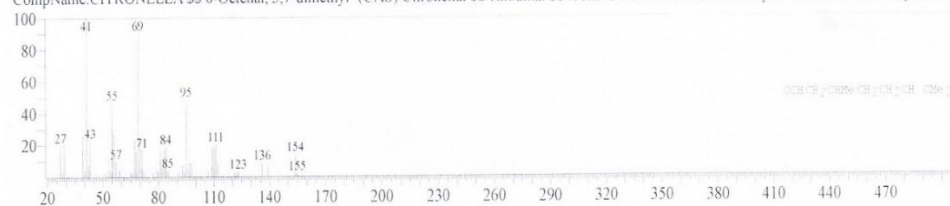
CompName:CITRONELLA SS 6-Octenal, 3,7-dimethyl- (CAS) Citronellal SS Rhodinal SS beta.-Citronellal SS 3,7-Dimethyl-6-octenal SS 2,3-Dihydrocitril



Hit#:2 Entry:43602 Library:WILEY7.LIB

SI:96 Formula:C10 H18 O CAS:106-23-0 MolWeight:154 RetIndex:0

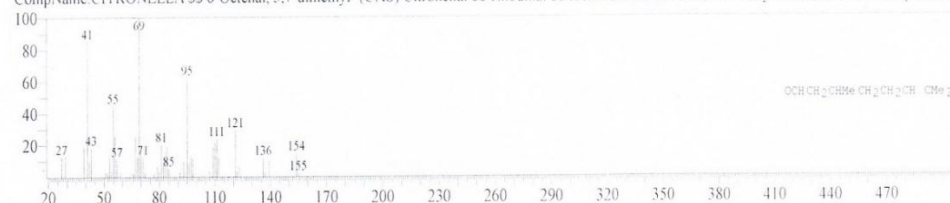
CompName:CITRONELLA SS 6-Octenal, 3,7-dimethyl- (CAS) Citronellal SS Rhodinal SS beta.-Citronellal SS 3,7-Dimethyl-6-octenal SS 2,3-Dihydrocitril



Hit#:3 Entry:43607 Library:WILEY7.LIB

SI:96 Formula:C10 H18 O CAS:106-23-0 MolWeight:154 RetIndex:0

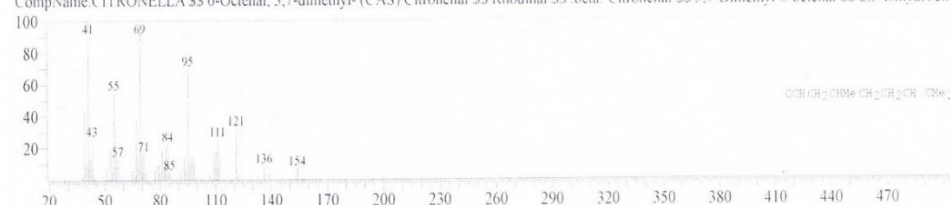
CompName:CITRONELLA SS 6-Octenal, 3,7-dimethyl- (CAS) Citronellal SS Rhodinal SS beta.-Citronellal SS 3,7-Dimethyl-6-octenal SS 2,3-Dihydrocitril



Hit#:4 Entry:43604 Library:WILEY7.LIB

SI:95 Formula:C10 H18 O CAS:106-23-0 MolWeight:154 RetIndex:0

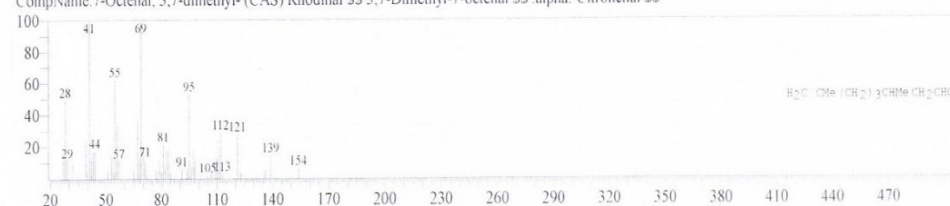
CompName:CITRONELLA SS 6-Octenal, 3,7-dimethyl- (CAS) Citronellal SS Rhodinal SS beta.-Citronellal SS 3,7-Dimethyl-6-octenal SS 2,3-Dihydrocitril



Hit#:5 Entry:42744 Library:WILEY7.LIB

SI:94 Formula:C10 H18 O CAS:141-26-4 MolWeight:154 RetIndex:0

CompName:7-Octenal, 3,7-dimethyl- (CAS) Rhodinal SS 3,7-Dimethyl-7-octenal SS alpha.-Citronellal SS



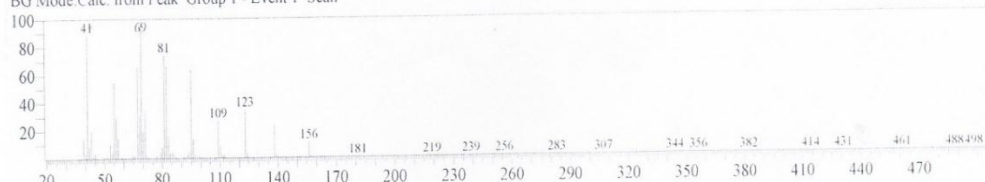
.beta.-Citronellol

<< Target >>

Line#:3 R.Time:8.975(Scan#:1196) MassPeaks:365

RawMode:Averaged 8.970-8.980(1195-1197) BasePeak:69.10(2279776)

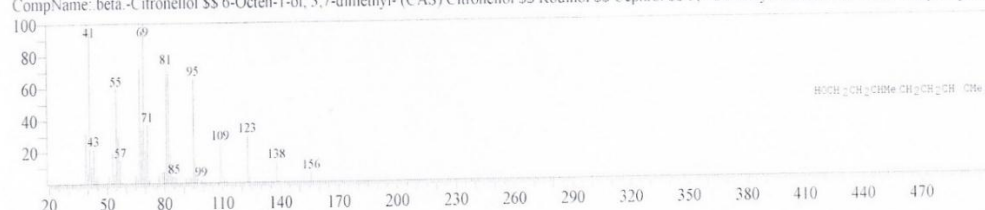
BG Mode:Calc. from Peak Group 1 - Event 1 Scan



Hit#:1 Entry:46129 Library:WILEY7.LIB

SI:97 Formula:C10 H20 O CAS:106-22-9 MolWeight:156 RetIndex:0

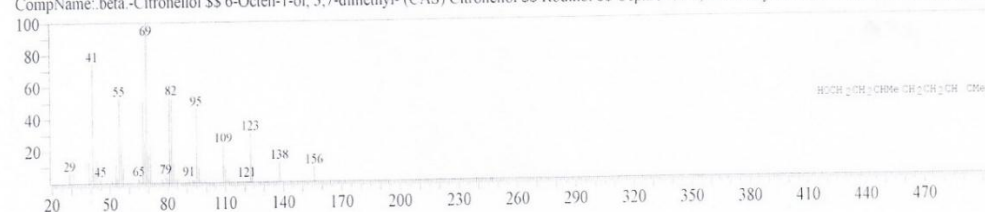
CompName: .beta.-Citronellol SS 6-Octen-1-ol, 3,7-dimethyl- (CAS) Citronellol SS Rodinol SS Cephrol SS 3,7-Dimethyl-6-octen-1-ol SS 2,3-Dihydrogeranic



Hit#:2 Entry:46132 Library:WILEY7.LIB

SI:95 Formula:C10 H20 O CAS:106-22-9 MolWeight:156 RetIndex:0

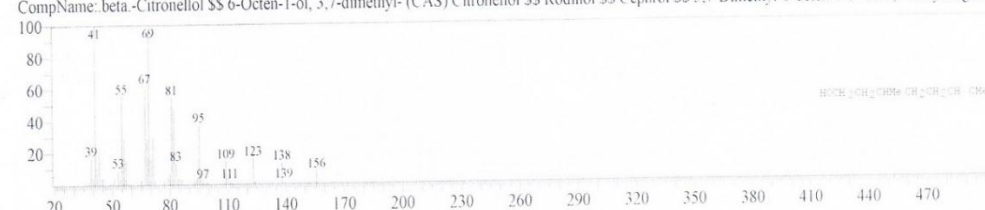
CompName: .beta.-Citronellol SS 6-Octen-1-ol, 3,7-dimethyl- (CAS) Citronellol SS Rodinol SS Cephrol SS 3,7-Dimethyl-6-octen-1-ol SS 2,3-Dihydrogeranic



Hit#:3 Entry:46130 Library:WILEY7.LIB

SI:94 Formula:C10 H20 O CAS:106-22-9 MolWeight:156 RetIndex:0

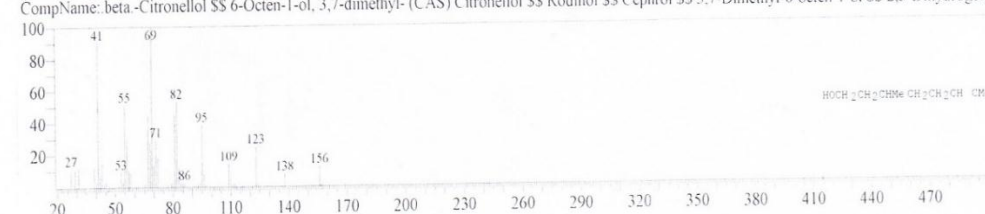
CompName: .beta.-Citronellol SS 6-Octen-1-ol, 3,7-dimethyl- (CAS) Citronellol SS Rodinol SS Cephrol SS 3,7-Dimethyl-6-octen-1-ol SS 2,3-Dihydrogeranic



Hit#:4 Entry:46125 Library:WILEY7.LIB

SI:93 Formula:C10 H20 O CAS:106-22-9 MolWeight:156 RetIndex:0

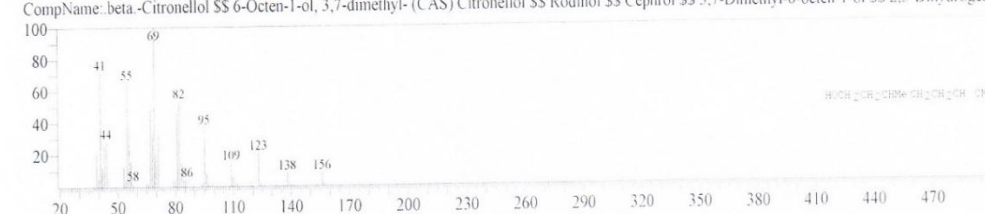
CompName: .beta.-Citronellol SS 6-Octen-1-ol, 3,7-dimethyl- (CAS) Citronellol SS Rodinol SS Cephrol SS 3,7-Dimethyl-6-octen-1-ol SS 2,3-Dihydrogeranic



Hit#:5 Entry:46134 Library:WILEY7.LIB

SI:92 Formula:C10 H20 O CAS:106-22-9 MolWeight:156 RetIndex:0

CompName: .beta.-Citronellol SS 6-Octen-1-ol, 3,7-dimethyl- (CAS) Citronellol SS Rodinol SS Cephrol SS 3,7-Dimethyl-6-octen-1-ol SS 2,3-Dihydrogeranic



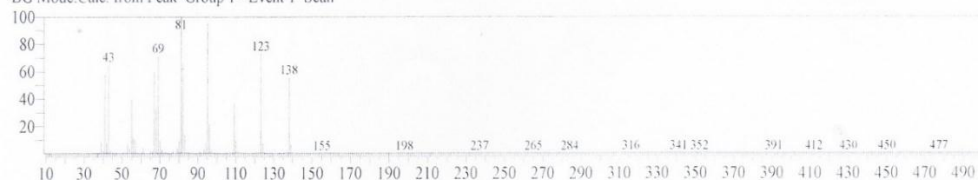
Citronellyl acetate

<< Target >>

Line#:4 R.Time:10.080(Scan#:1417) MassPeaks:336

RawMode:Averaged 10.075-10.085(1416-1418) BasePeak:81.10(2435303)

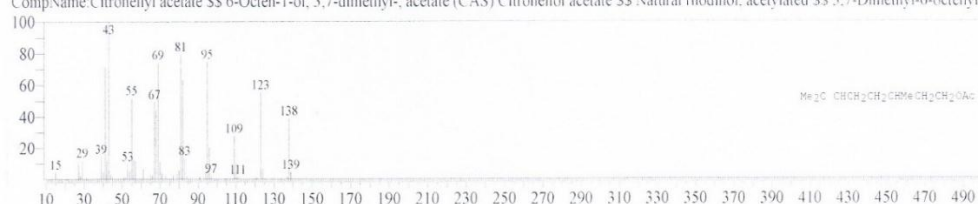
BG Mode:Calc. from Peak Group 1 - Event 1 Scan



Hit#:1 Entry:93507 Library:WILEY7.LIB

SI:94 Formula:C12 H22 O2 CAS:150-84-5 MolWeight:198 RetIndex:0

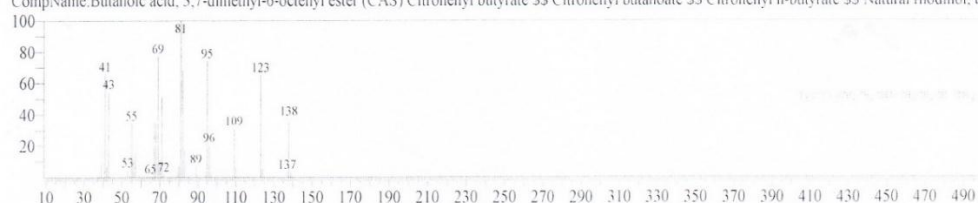
CompName:Citronellyl acetate SS 6-Octen-1-ol, 3,7-dimethyl-, acetate (CAS) Citronellol acetate SS Natural rhodinol, acetylated SS 3,7-Dimethyl-6-octenyl



Hit#:2 Entry:129106 Library:WILEY7.LIB

SI:93 Formula:C14 H26 O2 CAS:141-16-2 MolWeight:226 RetIndex:0

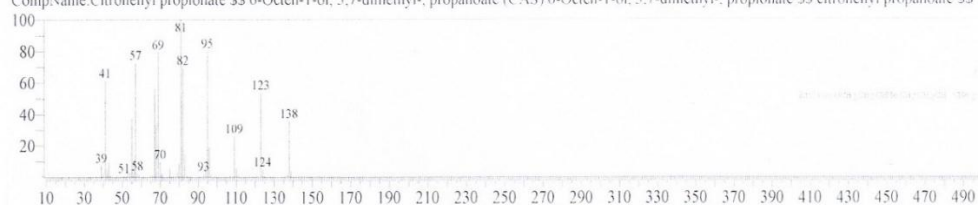
CompName:Butanoic acid, 3,7-dimethyl-6-octenyl ester (CAS) Citronellyl butyrate SS Citronellyl butanoate SS Citronellyl n-butyrate SS Natural rhodinol, bu



Hit#:3 Entry:111282 Library:WILEY7.LIB

SI:93 Formula:C13 H24 O2 CAS:141-14-0 MolWeight:212 RetIndex:0

CompName:Citronellyl propionate SS 6-Octen-1-ol, 3,7-dimethyl-, propionate (CAS) 6-Octen-1-ol, 3,7-dimethyl-, propionate SS citronellyl propionate SS



Hit#:4 Entry:128556 Library:WILEY7.LIB

SI:92 Formula:C14 H26 O2 CAS:0-00-0 MolWeight:226 RetIndex:0

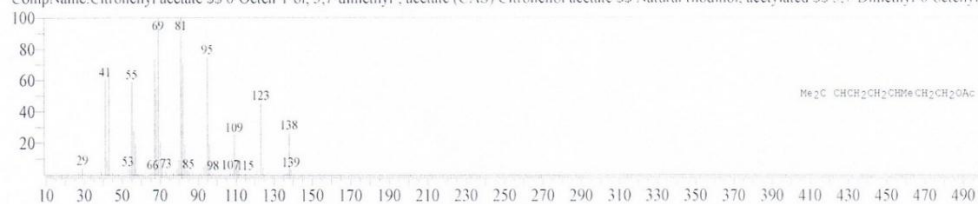
CompName:citronellyl 2-methylpropanoate SS



Hit#:5 Entry:93508 Library:WILEY7.LIB

SI:92 Formula:C12 H22 O2 CAS:150-84-5 MolWeight:198 RetIndex:0

CompName:Citronellyl acetate SS 6-Octen-1-ol, 3,7-dimethyl-, acetate (CAS) Citronellol acetate SS Natural rhodinol, acetylated SS 3,7-Dimethyl-6-octenyl



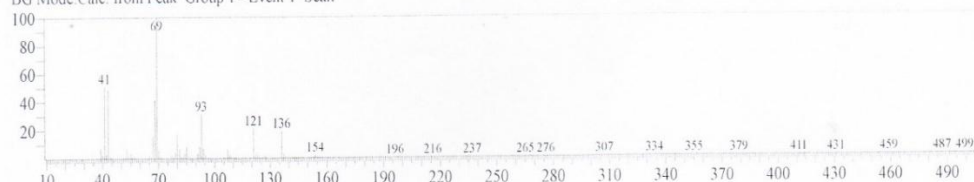
NERYL ACETATE

<< Target >>

Line# 5 R.Time:10.280(Scan#:1457) MassPeaks:328

RawMode:Averaged 10.275-10.285(1456-1458) BasePeak:69.10(2586236)

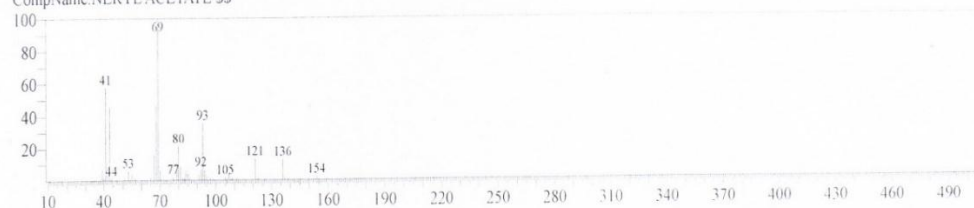
BG Mode:Calc. from Peak Group 1 - Event 1 Scan



Hit# 1 Entry:90278 Library:WILEY7.LIB

SI:96 Formula:C12 H20 O2 CAS:105-87-3 MolWeight:196 RetIndex:0

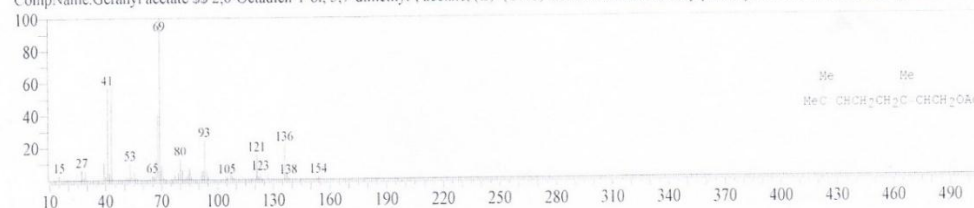
CompName:NERYL ACETATE SS



Hit# 2 Entry:91011 Library:WILEY7.LIB

SI:96 Formula:C12 H20 O2 CAS:105-87-3 MolWeight:196 RetIndex:0

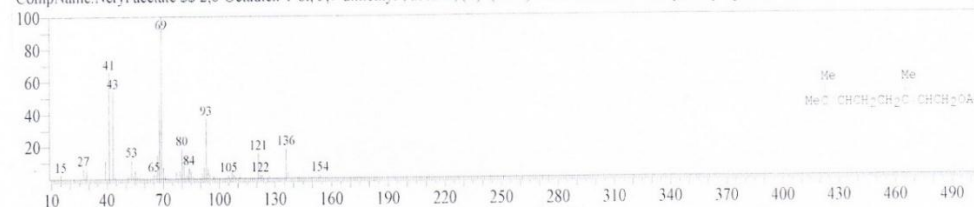
CompName:Geranyl acetate SS 2,6-Octadien-1-ol, 3,7-dimethyl-, acetate, (E)- (CAS) Geraniol acetate SS Bay pine (oyster) oil SS Acetic acid geraniol ester 5



Hit# 3 Entry:91002 Library:WILEY7.LIB

SI:95 Formula:C12 H20 O2 CAS:141-12-8 MolWeight:196 RetIndex:0

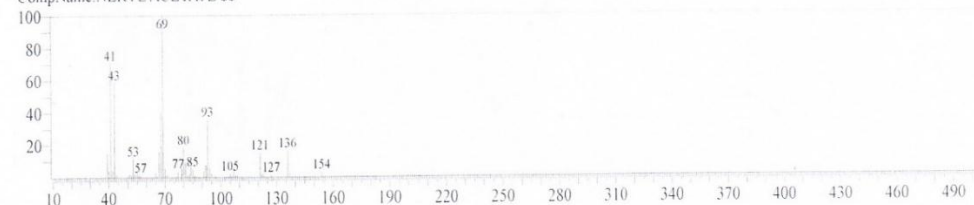
CompName:Neryl acetate SS 2,6-Octadien-1-ol, 3,7-dimethyl-, acetate, (Z)- (CAS) Nerol acetate SS Linalyl, neryl, geranyl acetates, mixture SS cis-Geranyl a



Hit# 4 Entry:90277 Library:WILEY7.LIB

SI:95 Formula:C12 H20 O2 CAS:105-87-3 MolWeight:196 RetIndex:0

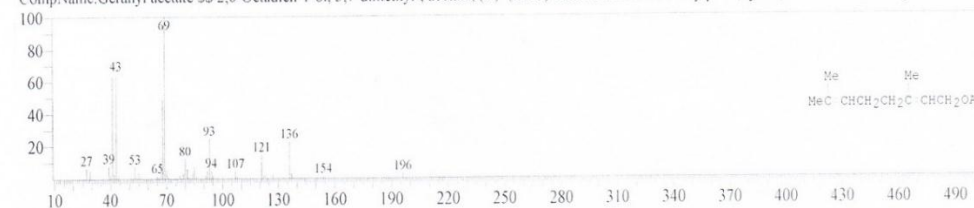
CompName:NERYL ACETATE SS



Hit# 5 Entry:91015 Library:WILEY7.LIB

SI:95 Formula:C12 H20 O2 CAS:105-87-3 MolWeight:196 RetIndex:0

CompName:Geranyl acetate SS 2,6-Octadien-1-ol, 3,7-dimethyl-, acetate, (E)- (CAS) Geraniol acetate SS Bay pine (oyster) oil SS Acetic acid geraniol ester 5



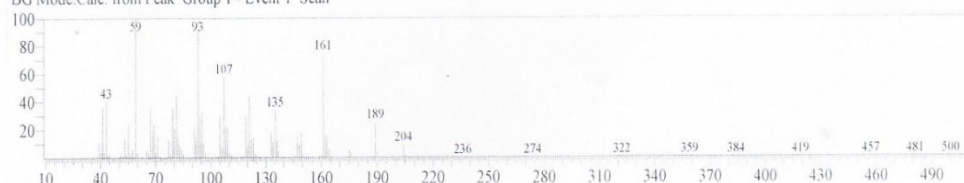
Elemol

<< Target >>

Line# 6 R.Time:11.650(Scan#:1731) MassPeaks:288

RawMode:Averaged 11.645-11.655(1730-1732) BasePeak:59.05(451630)

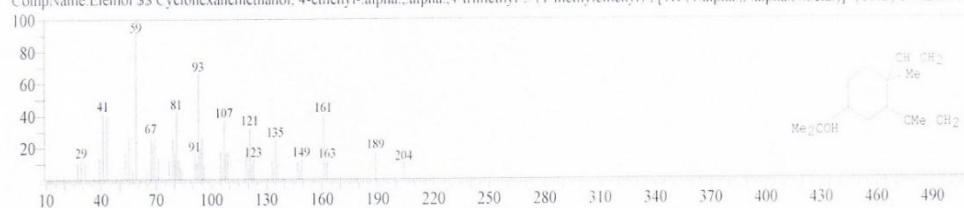
BG Mode:Calc. from Peak Group 1 - Event 1 Scan



Hit#1 Entry:123949 Library:WILEY7.LIB

SI:93 Formula:C15 H26 O CAS:639-99-6 MolWeight:222 RetIndex:0

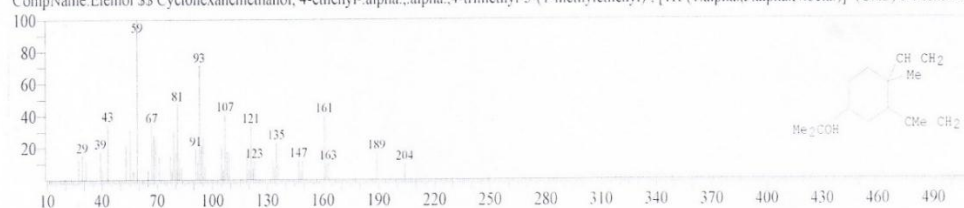
CompName:Elemol SS Cyclohexanemethanol, 4-ethenyl-, alpha., alpha., 4-trimethyl-3-(1-methylethenyl)-, [1R-(1.alpha.,3.alpha.,4.beta.)]- (CAS) o-Menth-8-



Hit#2 Entry:123953 Library:WILEY7.LIB

SI:91 Formula:C15 H26 O CAS:639-99-6 MolWeight:222 RetIndex:0

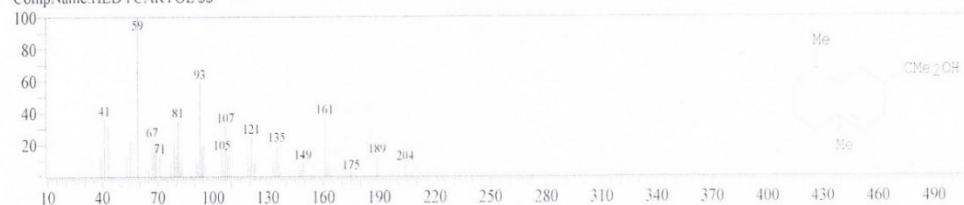
CompName:Elemol SS Cyclohexanemethanol, 4-ethenyl-, alpha., alpha., 4-trimethyl-3-(1-methylethenyl)-, [1R-(1.alpha.,3.alpha.,4.beta.)]- (CAS) o-Menth-8-



Hit#3 Entry:123957 Library:WILEY7.LIB

SI:90 Formula:C15 H26 O CAS:21657-90-9 MolWeight:222 RetIndex:0

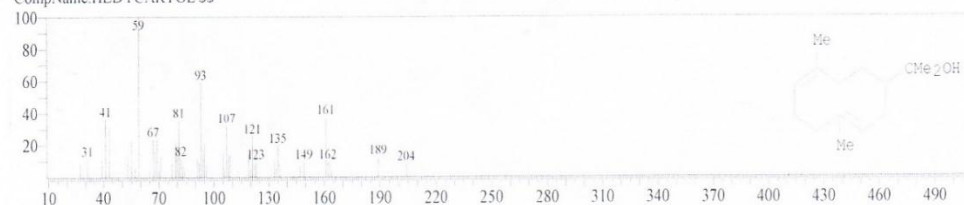
CompName:HEDYCARYOL SS



Hit#4 Entry:123956 Library:WILEY7.LIB

SI:90 Formula:C15 H26 O CAS:21657-90-9 MolWeight:222 RetIndex:0

CompName:HEDYCARYOL SS



Hit#5 Entry:123992 Library:WILEY7.LIB

SI:89 Formula:C15 H26 O CAS:22451-73-6 MolWeight:222 RetIndex:0

CompName:5-Azulenemethanol, 1,2,3,3a,4,5,6,7-octahydro-, alpha., alpha., 3,8-tetramethyl-, [3S-(3.alpha.,3a.beta.,5.alpha.)]- (CAS) Bulnesol SS Guai-1(10)



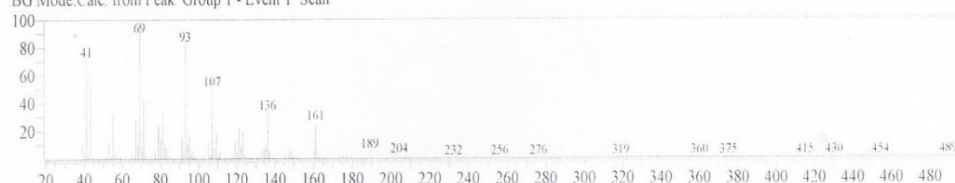
Nerolidol

<< Target >>

Line#:7 R.Time:11.695(Scan#:1740) MassPeaks:325

RawMode:Averaged 11.690-11.700(1739-1741) BasePeak:69.05(455728)

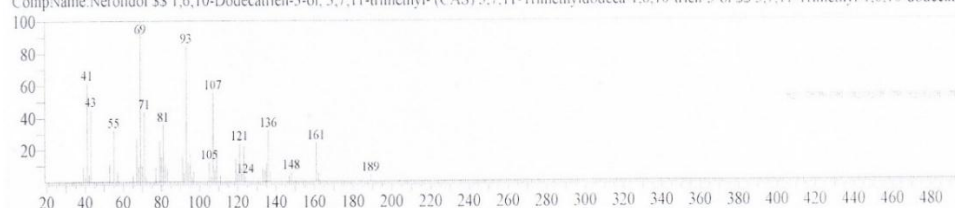
BG Mode:Calc. from Peak Group 1 - Event 1 Scan



Hit#:1 Entry:123919 Library:WILEY7.LIB

SI:98 Formula:C15 H26 O CAS:7212-44-4 MolWeight:222 RetIndex:0

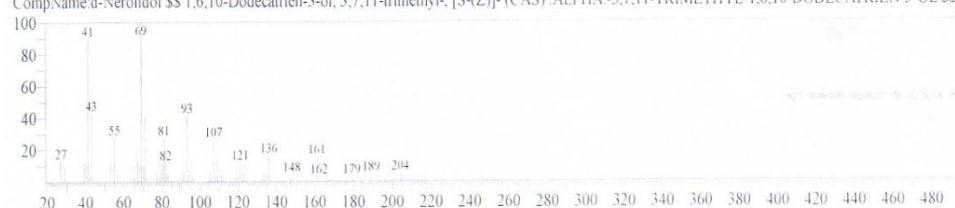
CompName:Nerolidol SS 1,6,10-Dodecatrien-3-ol, 3,7,11-trimethyl- (CAS) 3,7,11-Trimethyldodeca-1,6,10-trien-3-ol SS 3,7,11-Trimethyl-1,6,10-dodecatrie



Hit#:2 Entry:123910 Library:WILEY7.LIB

SI:91 Formula:C15 H26 O CAS:142-50-7 MolWeight:222 RetIndex:0

CompName:d-Nerolidol SS 1,6,10-Dodecatrien-3-ol, 3,7,11-trimethyl-, [S-(Z)]- (CAS) ALPHA-3,7,11-TRIMETHYL-1,6,10-DODECATRIEN-3-OL SS N



Hit#:3 Entry:123366 Library:WILEY7.LIB

SI:90 Formula:C15 H26 O CAS:0-00-0 MolWeight:222 RetIndex:0

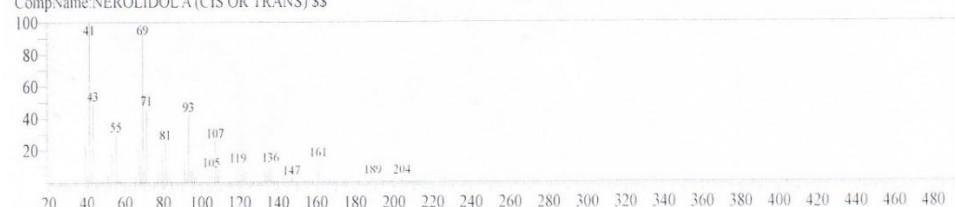
CompName:NEROLIDOL B (CIS OR TRANS) SS



Hit#:4 Entry:123365 Library:WILEY7.LIB

SI:89 Formula:C15 H26 O CAS:0-00-0 MolWeight:222 RetIndex:0

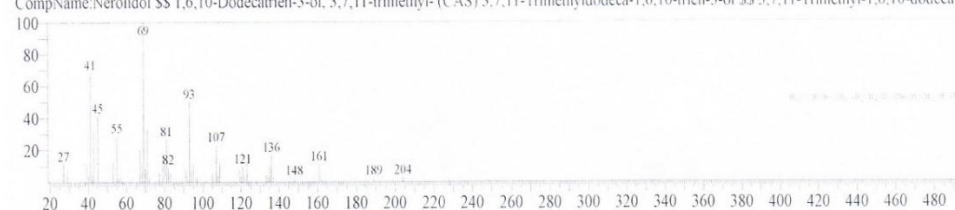
CompName:NEROLIDOL A (CIS OR TRANS) SS



Hit#:5 Entry:123920 Library:WILEY7.LIB

SI:88 Formula:C15 H26 O CAS:7212-44-4 MolWeight:222 RetIndex:0

CompName:Nerolidol SS 1,6,10-Dodecatrien-3-ol, 3,7,11-trimethyl- (CAS) 3,7,11-Trimethyldodeca-1,6,10-trien-3-ol SS 3,7,11-Trimethyl-1,6,10-dodecatrie



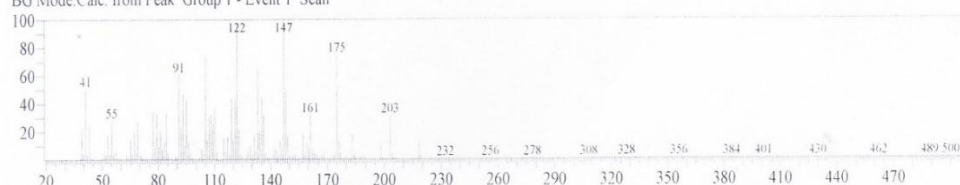
LONGIVERBENON (VULGARON B)

<< Target >>

Line#:8 R.Time:12.475(Scan#:1896) MassPeaks:313

RawMode:Averaged 12.470-12.480(1895-1897) BasePeak:147.10(250384)

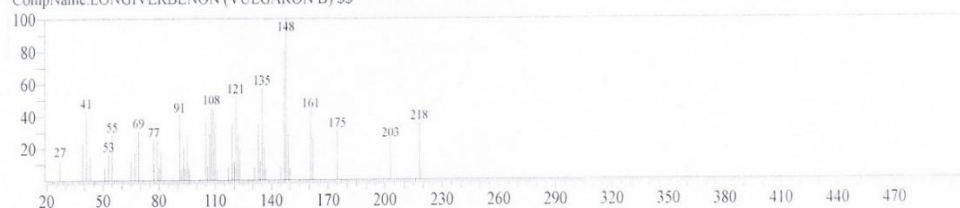
BG Mode:Calc. from Peak Group 1 - Event 1 Scan



Hit#:1 Entry:117835 Library:WILEY7.LIB

SI:84 Formula:C15 H22 O CAS:0-00-0 MolWeight:218 RetIndex:0

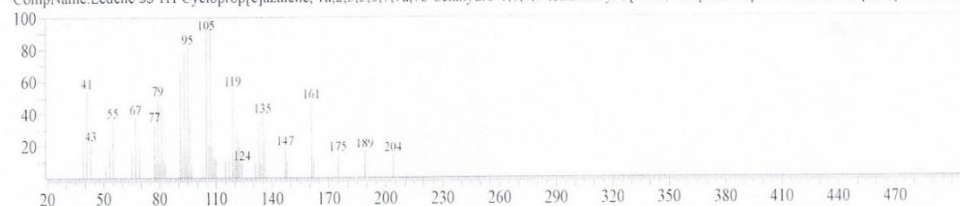
CompName:LONGIVERBENON (VULGARON B) SS



Hit#:2 Entry:101022 Library:WILEY7.LIB

SI:78 Formula:C15 H24 CAS:21747-46-6 MolWeight:204 RetIndex:0

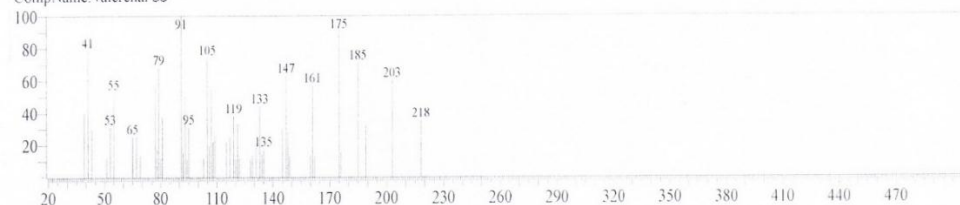
CompName:Ledene SS 1H-Cycloprop[e]azulene, 1a,2,3,5,6,7,7a,7b-octahydro-1,1,4,7-tetramethyl-, [1aR-(1a.alpha.,7a.alpha.,7a.beta.,7b.alpha.)]- SS Viridifl



Hit#:3 Entry:118333 Library:WILEY7.LIB

SI:78 Formula:C15 H22 O CAS:4176-16-3 MolWeight:218 RetIndex:0

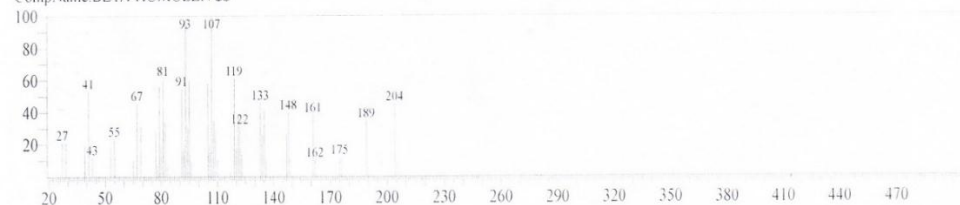
CompName:Valerenal SS



Hit#:4 Entry:100350 Library:WILEY7.LIB

SI:78 Formula:C15 H24 CAS:0-00-0 MolWeight:204 RetIndex:0

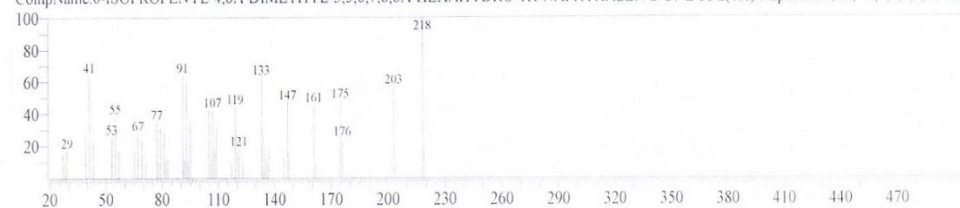
CompName:BETA-HUMULEN SS



Hit#:5 Entry:117846 Library:WILEY7.LIB

SI:78 Formula:C15 H22 O CAS:86941-63-1 MolWeight:218 RetIndex:0

CompName:6-ISOPROPENYL-4,8A-DIMETHYL-3,5,6,7,8,8A-HEXAHYDRO-1H-NAPHTHALEN-2-ONE SS 2(1H)-Naphthalenone, 4a,5,6,7,8,8a-hexa



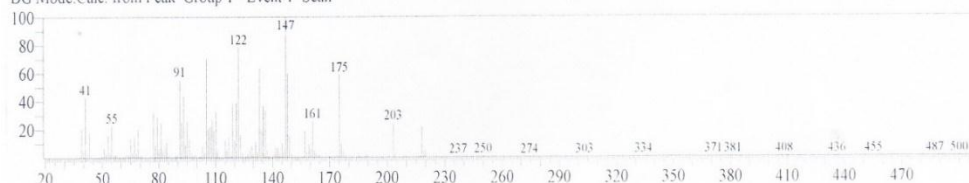
LONGIVERBENON (VULGARON B)

<< Target >>

Line#:9 R.Time:12.555(Scan#:1912) MassPeaks:313

RawMode:Averaged 12.550-12.560(1911-1913) BasePeak:147.10(120635)

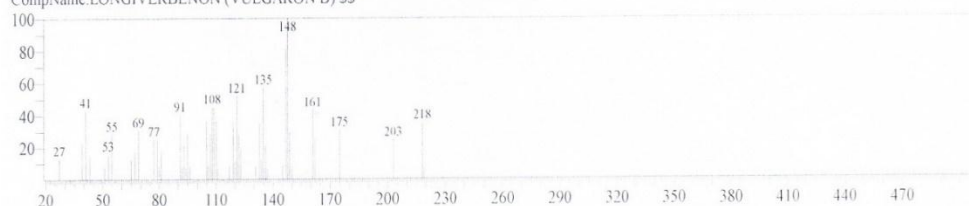
BG Mode:Calc. from Peak Group 1 - Event 1 Scan



Hit#:1 Entry:117835 Library:WILEY7.LIB

SI:85 Formula:C15 H22 O CAS:0-00-0 MolWeight:218 RetIndex:0

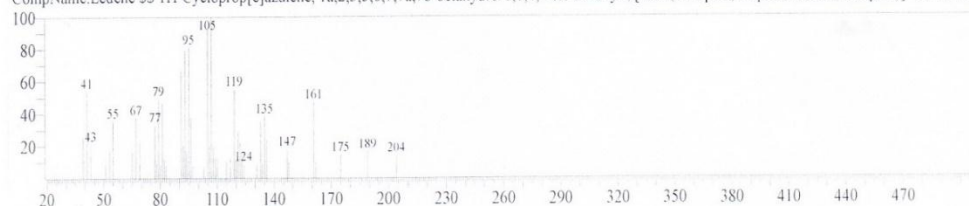
CompName:LONGIVERBENON (VULGARON B) SS



Hit#:2 Entry:101022 Library:WILEY7.LIB

SI:79 Formula:C15 H24 CAS:21747-46-6 MolWeight:204 RetIndex:0

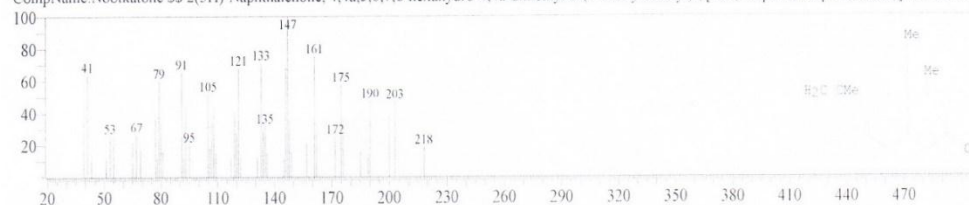
CompName:Ledene SS 1H-Cycloprop[e]azulene, 1a,2,3,5,6,7,7a,7b-octahydro-1,1,4,7-tetramethyl-, [1aR-(1a.alpha.,7a.alpha.,7a.beta.,7b.alpha.)]- SS Viridifl



Hit#:3 Entry:118302 Library:WILEY7.LIB

SI:79 Formula:C15 H22 O CAS:4674-50-4 MolWeight:218 RetIndex:0

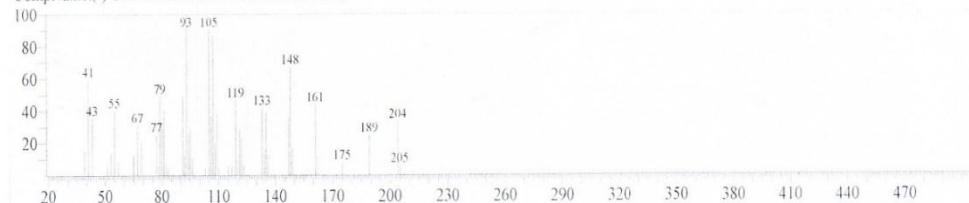
CompName:Nootkatone SS 2(3H)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-4,4a-dimethyl-6-(1-methylethenyl)-, [4R-(4.alpha.,4a.alpha.,6.beta.)]- (CAS) NO



Hit#:4 Entry:100330 Library:WILEY7.LIB

SI:79 Formula:C15 H24 CAS:0-00-0 MolWeight:204 RetIndex:0

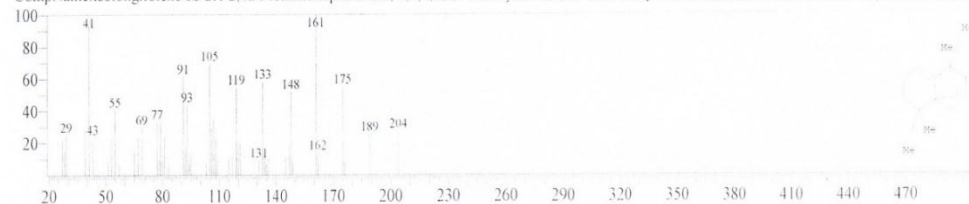
CompName:(-)-DEHYDROAROMADENDRANE SS



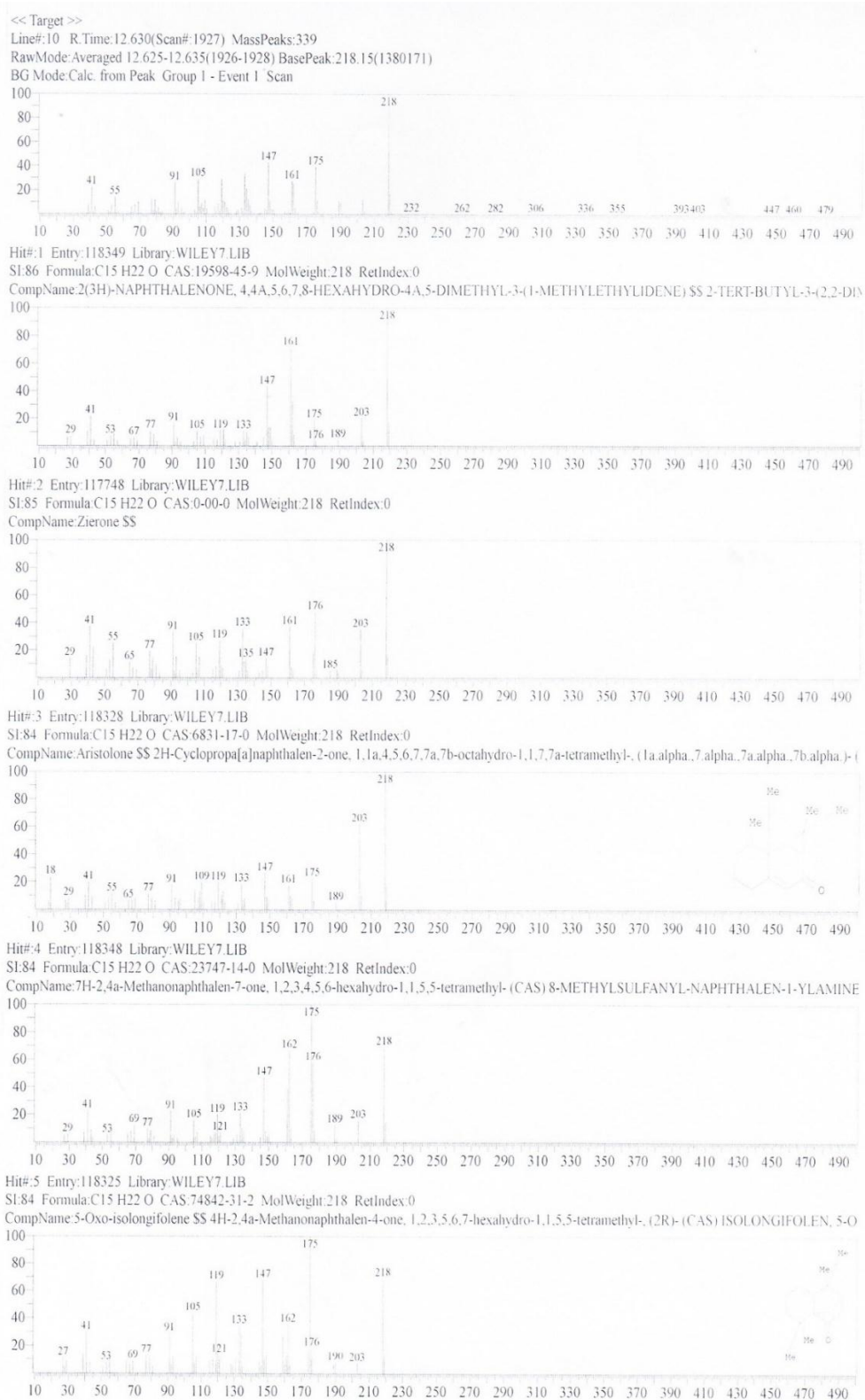
Hit#:5 Entry:100942 Library:WILEY7.LIB

SI:78 Formula:C15 H24 CAS:1135-66-6 MolWeight:204 RetIndex:0

CompName:Isolongifolene SS 2H-2,4a-Methanonaphthalene, 1,3,4,5,6,7-hexahydro-1,1,5,5-tetramethyl-, (2S)- (CAS) 2H-2,4a-Methanonaphthalene, 1,3,4,5



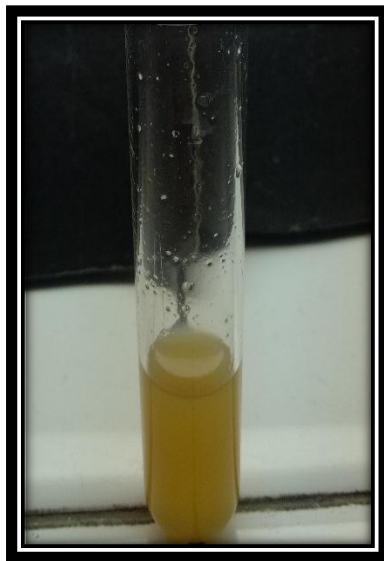
2(3H)-NAPHTHALENONE, 4,4A,5,6,7,8-HEXAHYDRO-4 A,5-DIME



Lampiran 9. Pembuatan suspensi bakteri uji *Streptococcus mutans* ATCC 25175



Biakan murni bakteri *Streptococcus mutans* ATCC 25175

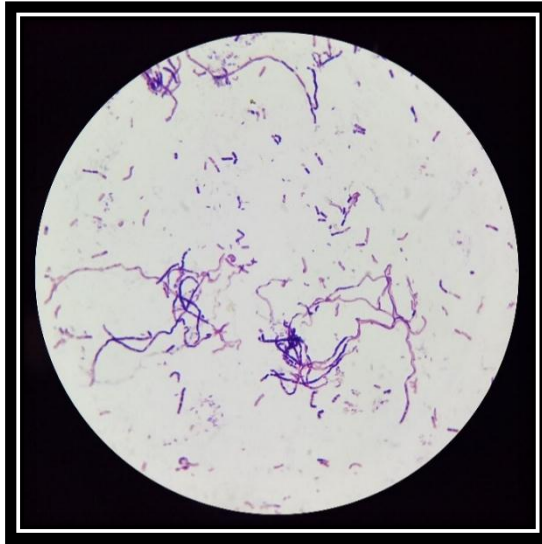


Suspeni bakteri *S.mutans*

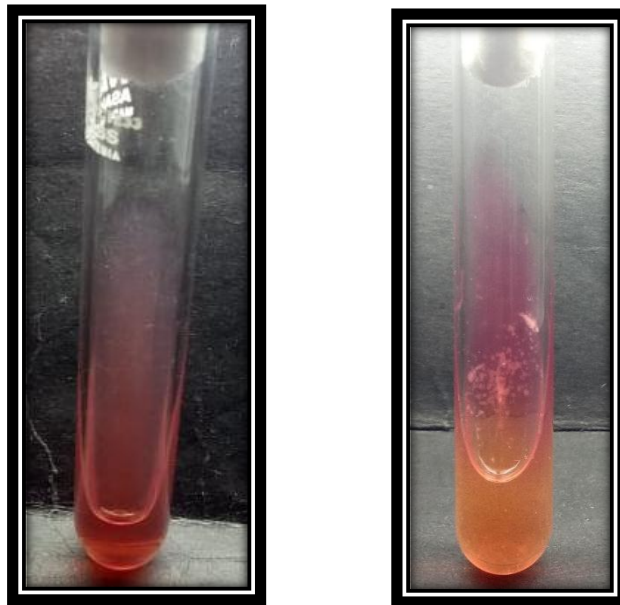


Suspensi bakteri sesuai standar mcfarland

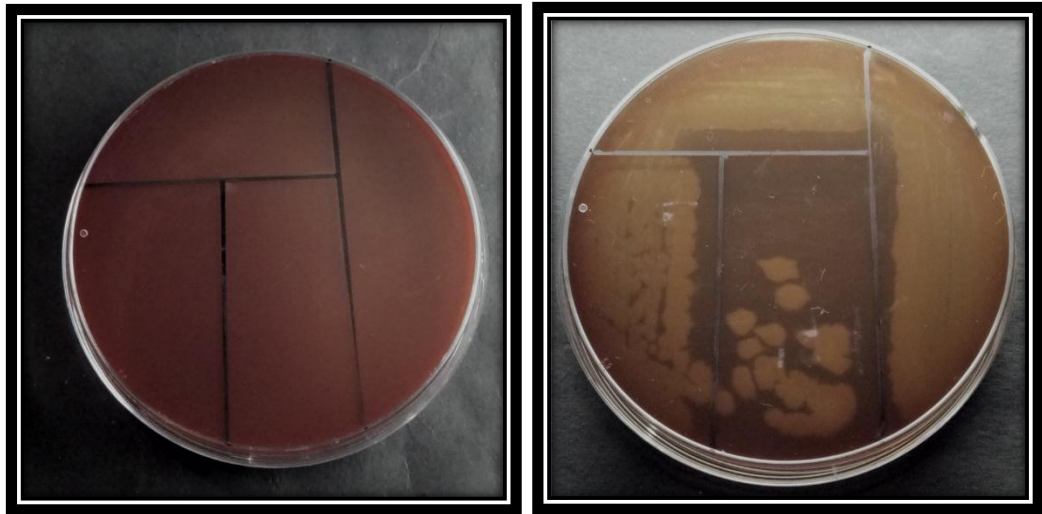
Lampiran 10. Hasil identifikasi *Streptococcus mutans* 25175



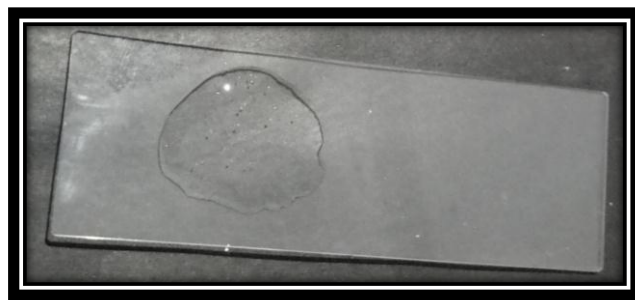
Hasil pewarnaan Gram *Streptococcus mutans* ATCC 25175



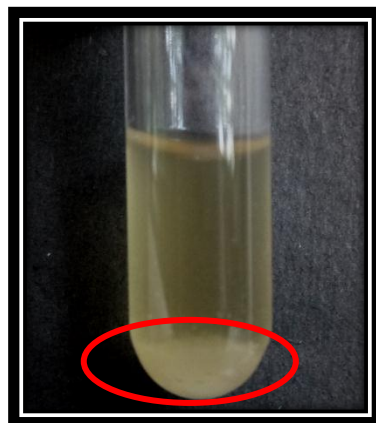
Hasil uji biokimia *Streptococcus mutans* pada media Manitol Salt agar



Hasil inokulasi *Streptococcus mutans* pada media agar darah (Blood Agar)

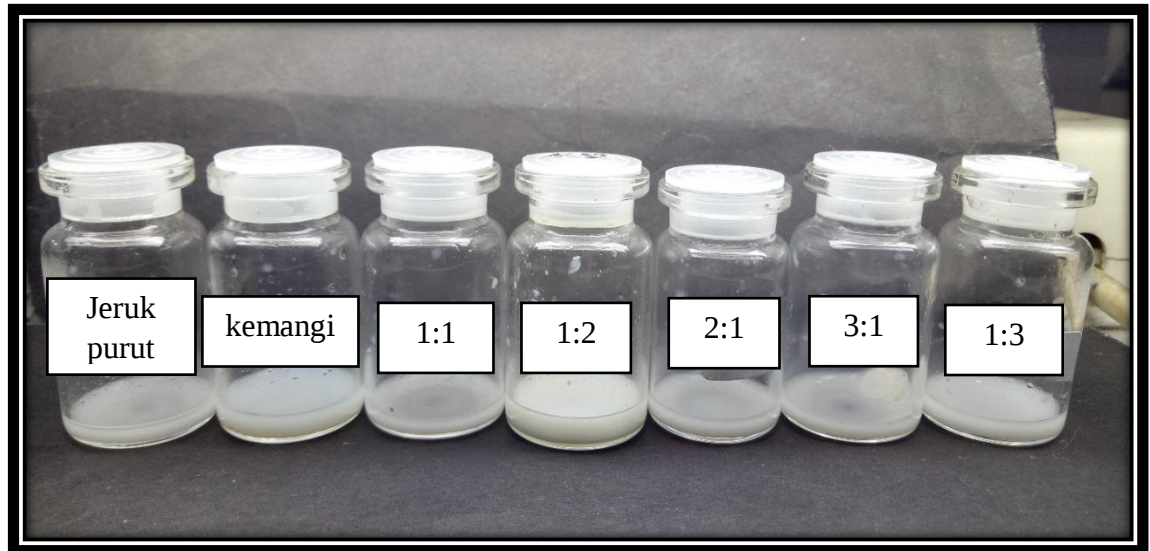


Hasil uji katalase

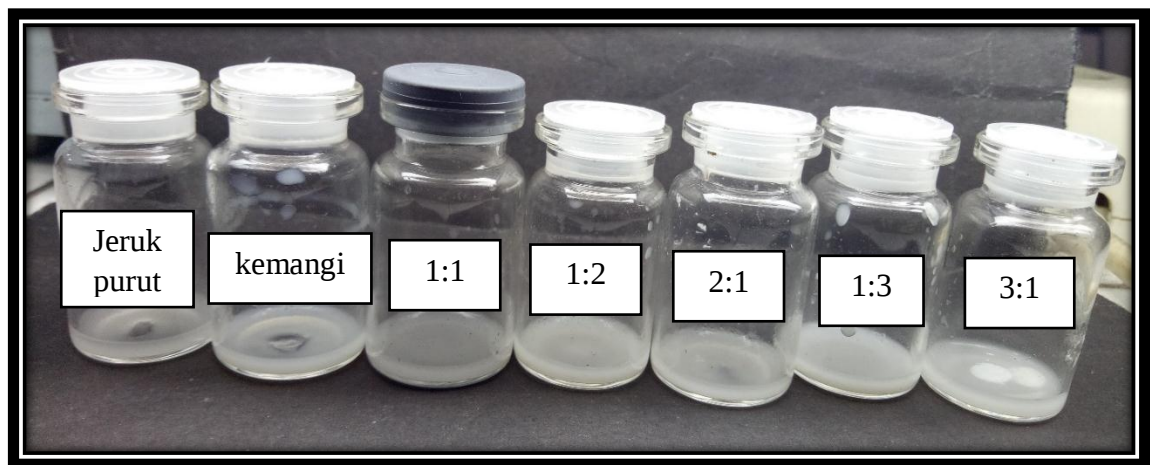


Hasil uji koagulase

Lampiran 11. Sampel minyak atsiri daun kemangi dan minyak atsiri daun jeruk purut serta kombinasi keduanya



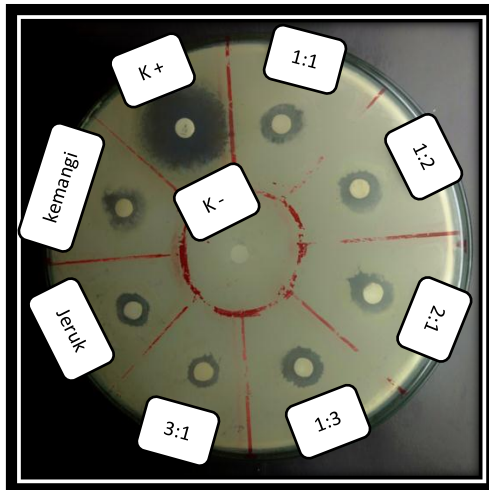
Sampel jeruk purut 4%, kemangi 4%, dan kombinasi keduanya



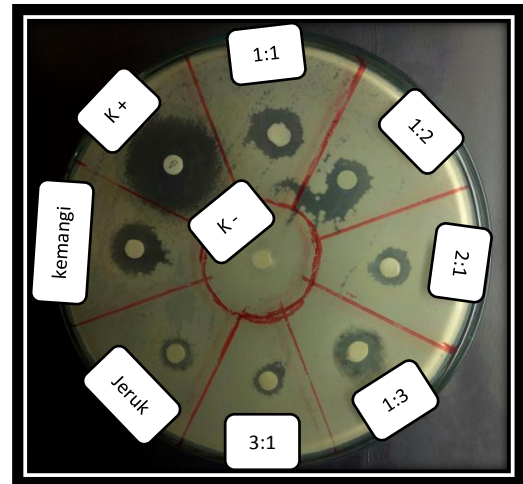
Sampel jeruk purut 4%, kemangi 4%, dan kombinasi keduanya

Lampiran 12. Hasil uji aktivitas antibakteri dengan metode difusi

Replikasi I

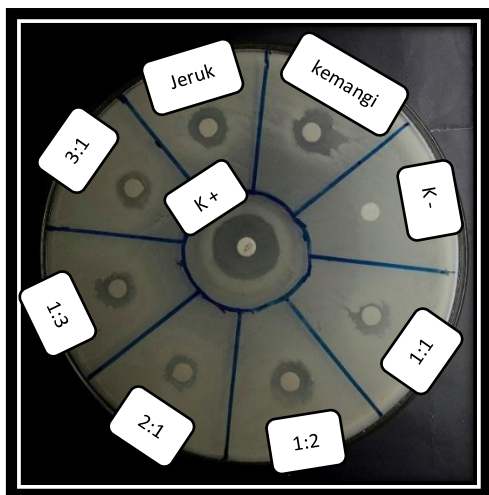


Konsentrasi 2%

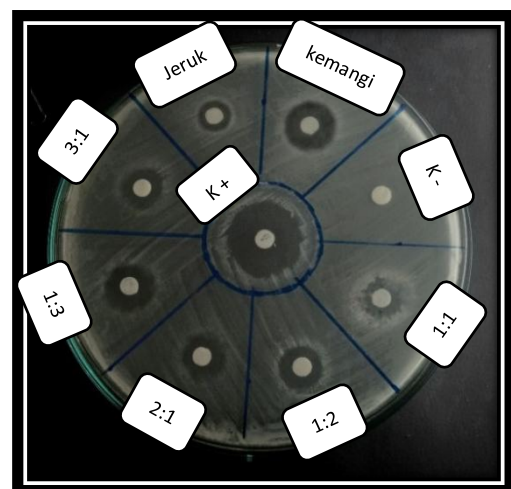


Konsentrasi 4%

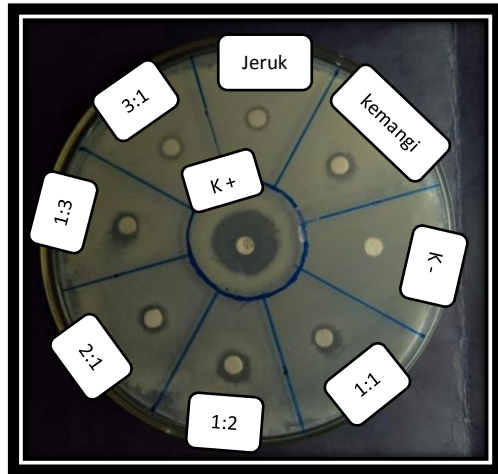
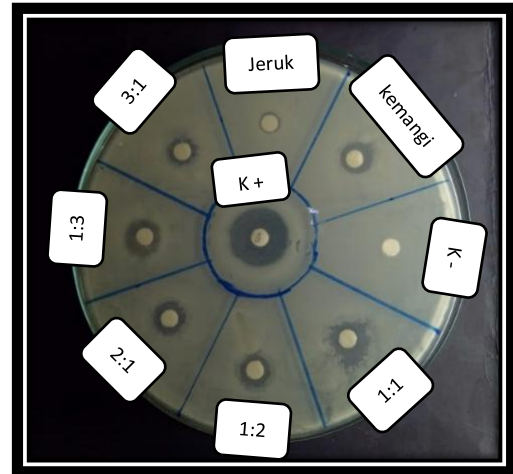
Replikasi II



Konsentrasi 2%



Konsentrasi 4%

Replikasi III**Konsentrasi 2%****konsentrasi 4%**

Lampiran 13. Hasil analisis data dengan menggunakan *Analysis Of Varian* (ANOVA) dua jalur

One-Sample Kolmogorov-Smirnov Test

		zonahambat
N		48
Normal Parameters ^{a,b}	Mean	13,4896
	Std. Deviation	4,85151
	Absolute	,193
Most Extreme Differences	Positive	,193
	Negative	-,101
Kolmogorov-Smirnov Z		1,340
Asymp. Sig. (2-tailed)		,055

a. Test distribution is Normal.

b. Calculated from data.

Descriptive Statistics

Dependent Variable: zonahambat

bahanuji	konsentrasi	Mean	Std. Deviation	N
kontrolpositif	2%	24,8333	4,73242	3
	4%	23,9167	4,21555	3
	Total	24,3750	4,03965	6
jeruktunggal	2%	9,1667	1,70171	3
	4%	10,3333	2,03613	3
	Total	9,7500	1,79583	6
kemangitunggal	2%	11,9167	2,37610	3
	4%	14,0833	2,24072	3
	Total	13,0000	2,38223	6
1:1	2%	11,1667	1,23322	3
	4%	13,6667	1,42156	3
	Total	12,4167	1,81430	6
1:2	2%	12,6667	1,75594	3
	4%	13,5833	1,01036	3
	Total	13,1250	1,37614	6
2:1	2%	10,2500	1,88746	3
	4%	12,5000	1,14564	3
	Total	11,3750	1,86246	6
1:3	2%	11,5000	1,63936	3
	4%	14,7500	2,00000	3
	Total	13,1250	2,41738	6
3:1	2%	10,0833	2,50416	3
	4%	11,4167	2,80995	3
	Total	10,7500	2,48998	6
Total	2%	12,6979	5,22118	24
	4%	14,2813	4,41915	24
	Total	13,4896	4,85151	48

Levene's Test of Equality of Error Variances^a

Dependent Variable: zonahambat

F	df1	df2	Sig.
1,861	15	32	,069

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

Design: Intercept + bahanuji + konsentrasi + bahanuji * konsentrasi

Multiple Comparisons

Dependent Variable: zonahambat

Tukey HSD

(I) bahanuji	(J) bahanuji	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval		
					Lower Bound	Upper Bound	
kontrolpositif	jeruktunggal	14,6250*	1,37878	,000	10,1587	19,0913	
	kemangitunggal	11,3750*	1,37878	,000	6,9087	15,8413	
	1:1	11,9583*	1,37878	,000	7,4920	16,4246	
	1:2	11,2500*	1,37878	,000	6,7837	15,7163	
	2:1	13,0000*	1,37878	,000	8,5337	17,4663	
	1:3	11,2500*	1,37878	,000	6,7837	15,7163	
	3:1	13,6250*	1,37878	,000	9,1587	18,0913	
	kontrolpositif	-14,6250*	1,37878	,000	-19,0913	-10,1587	
jeruktunggal	kemangitunggal	-3,2500	1,37878	,296	-7,7163	1,2163	
	1:1	-2,6667	1,37878	,539	-7,1330	1,7996	
	1:2	-3,3750	1,37878	,254	-7,8413	1,0913	
	2:1	-1,6250	1,37878	,932	-6,0913	2,8413	
	1:3	-3,3750	1,37878	,254	-7,8413	1,0913	
	3:1	-1,0000	1,37878	,996	-5,4663	3,4663	
	kontrolpositif	-11,3750*	1,37878	,000	-15,8413	-6,9087	
	jeruktunggal	3,2500	1,37878	,296	-1,2163	7,7163	
kemangitunggal	1:1	,5833	1,37878	1,000	-3,8830	5,0496	
	1:2	-,1250	1,37878	1,000	-4,5913	4,3413	
	2:1	1,6250	1,37878	,932	-2,8413	6,0913	
	1:3	-,1250	1,37878	1,000	-4,5913	4,3413	
	3:1	2,2500	1,37878	,728	-2,2163	6,7163	
	kontrolpositif	-11,9583*	1,37878	,000	-16,4246	-7,4920	
	jeruktunggal	2,6667	1,37878	,539	-1,7996	7,1330	
	kemangitunggal	-,5833	1,37878	1,000	-5,0496	3,8830	
1:1	1:2	-,7083	1,37878	1,000	-5,1746	3,7580	
	2:1	1,0417	1,37878	,994	-3,4246	5,5080	
	1:3	-,7083	1,37878	1,000	-5,1746	3,7580	
	3:1	1,6667	1,37878	,923	-2,7996	6,1330	
	kontrolpositif	-11,2500*	1,37878	,000	-15,7163	-6,7837	
	jeruktunggal	3,3750	1,37878	,254	-1,0913	7,8413	
	kemangitunggal	,1250	1,37878	1,000	-4,3413	4,5913	
	1:1	,7083	1,37878	1,000	-3,7580	5,1746	
1:2	2:1	1,7500	1,37878	,903	-2,7163	6,2163	
	1:3	,0000	1,37878	1,000	-4,4663	4,4663	
	3:1	2,3750	1,37878	,673	-2,0913	6,8413	
	kontrolpositif	-13,0000*	1,37878	,000	-17,4663	-8,5337	
	jeruktunggal	1,6250	1,37878	,932	-2,8413	6,0913	
	kemangitunggal	-1,6250	1,37878	,932	-6,0913	2,8413	
	1:1	-1,0417	1,37878	,994	-5,5080	3,4246	
	1:2	-1,7500	1,37878	,903	-6,2163	2,7163	
2:1	1:3	-1,7500	1,37878	,903	-6,2163	2,7163	
	3:1	,6250	1,37878	1,000	-3,8413	5,0913	
	kontrolpositif	-11,2500*	1,37878	,000	-15,7163	-6,7837	
	jeruktunggal	3,3750	1,37878	,254	-1,0913	7,8413	
	1:1	1:2	1,7500	1,37878	1,000	-3,7580	5,1746
	2:1	1,7500	1,37878	1,000	-3,7580	5,1746	
	1:3	1,7500	1,37878	1,000	-3,7580	5,1746	
	3:1	1,7500	1,37878	1,000	-3,7580	5,1746	
1:3	kontrolpositif	-11,2500*	1,37878	,000	-15,7163	-6,7837	
	jeruktunggal	3,3750	1,37878	,254	-1,0913	7,8413	

3:1	kemangitungal	,1250	1,37878	1,000	-4,3413	4,5913
	1:1	,7083	1,37878	1,000	-3,7580	5,1746
	1:2	,0000	1,37878	1,000	-4,4663	4,4663
	2:1	1,7500	1,37878	,903	-2,7163	6,2163
	3:1	2,3750	1,37878	,673	-2,0913	6,8413
	kontrolpositif	-13,6250*	1,37878	,000	-18,0913	-9,1587
	jeruktungal	1,0000	1,37878	,996	-3,4663	5,4663
	kemangitungal	-2,2500	1,37878	,728	-6,7163	2,2163
	1:1	-1,6667	1,37878	,923	-6,1330	2,7996
	1:2	-2,3750	1,37878	,673	-6,8413	2,0913
	2:1	-,6250	1,37878	1,000	-5,0913	3,8413
	1:3	-2,3750	1,37878	,673	-6,8413	2,0913

Based on observed means.

The error term is Mean Square(Error) = 5,703.

*. The mean difference is significant at the ,05 level.

Lampiran 14. Perhitungan rendemen minyak atsiri daun kemangi dan minyak atsiri daun jeruk purut

Perhitungan rendemen minyak atsiri daun kemangi

Daun kemangi (g)	Minyak atsiri (ml)	Rendemen (% v/b)
16.000	20	0,125

$$\begin{aligned}
 \% \text{ Rendemen} &= \frac{\text{bobot minyak atsiri (ml)}}{\text{bobot daun (g)}} \times 100\% \\
 &= \frac{20}{16.000} \times 100\% \\
 &= 0,125\% \text{ } v/b
 \end{aligned}$$

Perhitungan rendemen minyak atsiri daun jeruk purut

Daun kemangi (g)	Minyak atsiri (ml)	Rendemen (% v/b)
3160	20	0,6329

$$\begin{aligned}
 \% \text{ Rendemen} &= \frac{\text{bobot minyak atsiri (ml)}}{\text{bobot daun (g)}} \times 100\% \\
 &= \frac{20}{3160} \times 100\% \\
 &= 0,6329\% \text{ } v/b
 \end{aligned}$$

Lampiran 15. Perhitungan berat jenis minyak atsiri daun kemangi dan daun jeruk purut

Perhitungan bobot jenis minyak atsiri daun kemangi

Keterangan	Replikasi I	Replikasi II	Replikasi III
Piknometer kosong	12,485	12,483	12,485
Piknometer + air	22,341	22,341	22,340
Piknometer + minyak atsiri daun kemangi	21,547	21,549	21,549

Replikasi I

$$\begin{aligned}
 \text{Bobot jenis} &= \frac{(\text{berat piknometer} + \text{minyak atsiri}) - \text{berat piknometer kosong}}{(\text{berat piknometer} + \text{air}) - \text{berat piknometer kosong}} \\
 &= \frac{21,547 - 12,485}{22,341 - 12,485} \\
 &= \frac{9,062}{9,856} \\
 &= 0,9194
 \end{aligned}$$

Replikasi II

$$\begin{aligned}
 \text{Bobot jenis} &= \frac{(\text{berat piknometer} + \text{minyak atsiri}) - \text{berat piknometer kosong}}{(\text{berat piknometer} + \text{air}) - \text{berat piknometer kosong}} \\
 &= \frac{21,549 - 12,483}{22,341 - 12,483} \\
 &= \frac{9,066}{9,858} \\
 &= 0,9166
 \end{aligned}$$

Replikasi III

$$\begin{aligned}
 \text{Bobot jenis} &= \frac{(\text{berat piknometer} + \text{minyak atsiri}) - \text{berat piknometer kosong}}{(\text{berat piknometer} + \text{air}) - \text{berat piknometer kosong}} \\
 &= \frac{21,549 - 12,485}{22,340 - 12,485}
 \end{aligned}$$

$$= \frac{9,064}{9,855}$$

$$= 0,9197$$

Perhitungan berat jenis minyak atsiri daun jeruk purut

Keterangan	Replikasi I	Replikasi II	Replikasi III
Piknometer kosong	12,485	12,483	12,485
Piknometer + air	22,341	22,341	22,340
Piknometer + minyak atsiri daun kemangi	21,005	21,006	21,006

Replikasi I

$$\text{Bobot jenis} = \frac{(\text{berat piknometer} + \text{minyak atsiri}) - \text{berat piknometer kosong}}{(\text{berat piknometer} + \text{air}) - \text{berat piknometer kosong}}$$

$$= \frac{21,005 - 12,485}{22,341 - 12,485}$$

$$= \frac{8,52}{9,856}$$

$$= 0,8645$$

Replikasi II

$$\text{Bobot jenis} = \frac{(\text{berat piknometer} + \text{minyak atsiri}) - \text{berat piknometer kosong}}{(\text{berat piknometer} + \text{air}) - \text{berat piknometer kosong}}$$

$$= \frac{21,006 - 12,483}{22,341 - 12,483}$$

$$= \frac{8,523}{9,858}$$

$$= 0,8646$$

Replikasi III

$$\begin{aligned}\text{Bobot jenis} &= \frac{(\text{berat piknometer} + \text{minyak atsiri}) - \text{berat piknometer kosong}}{(\text{berat piknometer} + \text{air}) - \text{berat piknometer kosong}} \\ &= \frac{21,006 - 12,485}{22,340 - 12,485} \\ &= \frac{8,521}{9,855} \\ &= 0,8646\end{aligned}$$

Lampiran 16. Perhitungan indeks bias minyak atsiri daun kemangi dan minyak atsiri daun jeruk purut

Perhitungan minyak atsiri daun kemangi

Minyak atsiri	Hasil indeks bias (31°C)	Pustaka
Daun kemangi	1,484	Indeks bias (20°C) 1,426-1,506 (Depkes 1979)
Daun jeruk purut	1,453	Indeks bias (20°C) 1,475-1,485 (BSN 2006))

Perhitungan konversi suhu ruang dalam pemeriksaan indeks bias :

✚ Minyak atsiri daun kemangi

Faktor konversi suhu pada setiap kenaikan 1°C = 0,0004

Indeks bias teoritis 20°C = 1,426-1,506

Suhu ruang praktek 29,9°C

Perhitungan = ((29,9-20) x 0,0004) = 0,00396

Indeks bias pada suhu 29,9 °C = (1,426 + 0,00396) – (1,506 + 0,00396)

Jadi, indeks bias teoritis minyak atsiri daun kemangi adalah 1,430 – 1,510

Indeks bias minyak atsiri daun kemangi menurut praktek adalah 1,484

✚ Minyak atsiri daun jeruk purut

Faktor konversi suhu pada setiap kenaikan 1°C = 0,0004

Indeks bias teoritis 20°C = 1,426-1,506

Suhu ruang praktek 29,9°C

Perhitungan = ((29,9-20) x 0,0004) = 0,00396

Indeks bias pada suhu 29,9 °C = (1,475 + 0,00396) – (1,485 + 0,00396)

Jadi, indeks bias teoritis minyak atsiri daun jeruk purut adalah 1,479 – 1,489

Indeks bias minyak atsiri jeruk purut menurut praktek adalah 1,484

Jadi, indeks bias minyak atsiri daun kemangi menurut hasil penelitian sama dengan indeks bias menurut pustaka, sedangkan untuk minyak atsiri daun jeruk purut indeks biasnya mendekati indeks bias menurut pustaka.

Lampiran 17. Perhitungan Pembuatan Konsentrasi Minyak Atsiri

🚦 Konsentrasi 4%

$$V1 \times C1 = V2 \times C2$$

$$V1 \times 100\% = 5\text{ml} \times 4\%$$

$$V1 = \frac{5\text{ml} \times 4\%}{100\%}$$

$$V1 = 0,2 \text{ mL}$$

Diambil 0,2 ml Minyak Atsiri murni kemudian ditambah tween 1% sampai 5 ml menggunakan labu takar

🚦 Konsentrasi 2%

$$V1 \times C1 = V2 \times C2$$

$$V1 \times 100\% = 5\text{ml} \times 2\%$$

$$V1 = \frac{5\text{ml} \times 2\%}{100\%}$$

$$V1 = 0,1 \text{ mL}$$

Diambil 0,1 ml Minyak Atsiri murni kemudian ditambah tween 1% sampai 5 ml menggunakan labu takar

Keterangan:

V1 = Volume awal

V2 = Volume setelah pengenceran

C1 = Konsentrasi awal

C2 = Konsentrasi setelah pengenceran

Lampiran 18. Pengambilan Perbandingan Kombinasi Minyak Atsiri Daun Kemangi dan Daun Jeruk Purut

✚ Perbandingan 1:1 = 0,25ml : 0,25 ml

Diambil masing-masing 0,25 ml sampel minyak atsiri daun jeruk purut dan sampel minyak atsiri daun kemangi kemudian dimasukkan ke dalam vial.

✚ Perbandingan 1:2 = 0,167 ml : 0,33 ml

Diambil 0,167 ml sampel minyak atsiri daun jeruk purut dan 0,33 ml sampel minyak atsiri daun kemangi kemudian dimasukkan ke dalam vial.

✚ Perbandingan 2:1 = 0,33 ml : 0,167 ml

Diambil 0,33 ml sampel minyak atsiri daun jeruk purut dan 0,167 ml sampel minyak atsiri daun kemangi kemudian dimasukkan ke dalam vial.

✚ Perbandingan 1:3 = 0,125 ml : 0,375 ml

Diambil 0,125 ml sampel minyak atsiri daun jeruk purut dan 0,375 ml sampel minyak atsiri daun kemangi kemudian dimasukkan ke dalam vial.

✚ Perbandingan 3:1 = 0,375 ml : 0,125 ml

Diambil 0,375 ml sampel minyak atsiri daun jeruk purut dan 0,125 ml sampel minyak atsiri daun kemangi kemudian dimasukkan ke dalam vial.

Lampiran 19. Perhitungan rata-rata diameter zona hambat yang terbentuk

✚ Konsentrasi 2%

- **Eritromisin (+)**

$$\text{Replikasi I} = \frac{30+31+30+31}{4} = 30,50 \text{ mm}$$

$$\text{Replikasi II} = \frac{21+21+22+22}{4} = 21,50 \text{ mm}$$

$$\text{Replikasi III} = \frac{23+23+22+23}{4} = 22,75 \text{ mm}$$

- **Kemangi**

$$\text{Replikasi I} = \frac{13+12+11+12}{4} = 12,00 \text{ mm}$$

$$\text{Replikasi II} = \frac{15+13+15+14}{4} = 14,25 \text{ mm}$$

$$\text{Replikasi III} = \frac{9+10+9+10}{4} = 9,50 \text{ mm}$$

- **Jeruk purut**

$$\text{Replikasi I} = \frac{11+10+11+10}{4} = 10,50 \text{ mm}$$

$$\text{Replikasi II} = \frac{10+9+9+9}{4} = 9,75 \text{ mm}$$

$$\text{Replikasi III} = \frac{7+8+7+7}{4} = 7,25 \text{ mm}$$

- **1:1 (1 bagian jeruk purut dan 1 bagian kemangi)**

$$\text{Replikasi I} = \frac{11+13+10+13}{4} = 11,75 \text{ mm}$$

$$\text{Replikasi II} = \frac{11+12+12+13}{4} = 12,00 \text{ mm}$$

$$\text{Replikasi III} = \frac{9+10+10+10}{4} = 9,75 \text{ mm}$$

- **1:2 (1 bagian jeruk purut dan 2 bagian kemangi)**

$$\text{Replikasi I} = \frac{12+12+13+13}{4} = 12,50 \text{ mm}$$

$$\text{Replikasi II} = \frac{14+15+15+14}{4} = 14,50 \text{ mm}$$

$$\text{Replikasi III} = \frac{11+11+11+11}{4} = 11,00 \text{ mm}$$

- **2:1 (2 bagian jeruk purut dan 1 bagian kemangi)**

$$\text{Replikasi I} = \frac{11+12+11+14}{4} = 12,00 \text{ mm}$$

$$\text{Replikasi II} = \frac{9+11+11+11}{4} = 10,50 \text{ mm}$$

$$\text{Replikasi III} = \frac{9+8+8+8}{4} = 8,25 \text{ mm}$$

- **1:3 (1 bagian jeruk purut dan 3 bagian kemangi)**

$$\text{Replikasi I} = \frac{11+12+11+12}{4} = 11,50 \text{ mm}$$

$$\text{Replikasi II} = \frac{11+14+12+14}{4} = 13,00 \text{ mm}$$

$$\text{Replikasi III} = \frac{10+9+10+10}{4} = 9,75 \text{ mm}$$

- **3:1 (3 bagian jeruk purut dan 1 bagian kemangi)**

$$\text{Replikasi I} = \frac{10+10+10+11}{4} = 10,25 \text{ mm}$$

$$\text{Replikasi II} = \frac{12+12+13+13}{4} = 12,50 \text{ mm}$$

$$\text{Replikasi III} = \frac{7+8+7+8}{4} = 7,50 \text{ mm}$$

Konsentrasi 4%

- **Eritromisin (+)**

$$\text{Replikasi I} = \frac{30+29+27+29}{4} = 28,75 \text{ mm}$$

$$\text{Replikasi II} = \frac{21+22+22+23}{4} = 22,00 \text{ mm}$$

$$\text{Replikasi III} = \frac{21+21+21+21}{4} = 21,00 \text{ mm}$$

- **Kemangi**

$$\text{Replikasi I} = \frac{15+15+17+15}{4} = 15,50 \text{ mm}$$

$$\text{Replikasi II} = \frac{15+16+14+16}{4} = 15,25 \text{ mm}$$

$$\text{Replikasi III} = \frac{11+11+12+12}{4} = 11,50 \text{ mm}$$

- **Jeruk purut**

$$\text{Replikasi I} = \frac{11+12+12+12}{4} = 11,75 \text{ mm}$$

$$\text{Replikasi II} = \frac{11+11+12+11}{4} = 11,25 \text{ mm}$$

$$\text{Replikasi III} = \frac{8+8+8+8}{4} = 8,00 \text{ mm}$$

- **1:1 (1 bagian jeruk purut dan 1 bagian kemangi)**

$$\text{Replikasi I} = \frac{16+14+16+15}{4} = 15,25 \text{ mm}$$

$$\text{Replikasi II} = \frac{13+12+12+12}{4} = 12,50 \text{ mm}$$

$$\text{Replikasi III} = \frac{12+14+14+13}{4} = 13,25 \text{ mm}$$

- **1:2 (1 bagian jeruk purut dan 2 bagian kemangi)**

$$\text{Replikasi I} = \frac{13+13+15+14}{4} = 13,75 \text{ mm}$$

$$\text{Replikasi II} = \frac{14+15+15+14}{4} = 14,50 \text{ mm}$$

$$\text{Replikasi III} = \frac{12+13+13+12}{4} = 12,50 \text{ mm}$$

- **2:1 (2 bagian jeruk purut dan 1 bagian kemangi)**

$$\text{Replikasi I} = \frac{12+14+13+12}{4} = 12,75 \text{ mm}$$

$$\text{Replikasi II} = \frac{14+13+13+14}{4} = 13,50 \text{ mm}$$

$$\text{Replikasi III} = \frac{11+12+11+11}{4} = 11,25 \text{ mm}$$

- **1:3 (1 bagian jeruk purut dan 3 bagian kemangi)**

$$\text{Replikasi I} = \frac{16+18+16+17}{4} = 16,75 \text{ mm}$$

$$\text{Replikasi II} = \frac{15+15+15+14}{4} = 14,75 \text{ mm}$$

$$\text{Replikasi III} = \frac{12+13+12+12}{4} = 12,75 \text{ mm}$$

- **3:1 (3 bagian jeruk purut dan 1 bagian kemangi)**

$$\text{Replikasi I} = \frac{10+11+10+12}{4} = 10,75 \text{ mm}$$

$$\text{Replikasi II} = \frac{14+13+16+15}{4} = 14,50 \text{ mm}$$

$$\text{Replikasi III} = \frac{9+9+9+9}{4} = 9,00 \text{ mm}$$

Media *Brain Heart Infusion* (BHI) merupakan media pertumbuhan bagi berbagai macam bakteri baik dalam bentuk cair maupun agar. Komposisi dari media BHI adalah sebagai berikut :

Beef Heart Infusion from Solids	17.5 gram
Dextrose	2.0 gram
Disodium Phosphate	2.5 gram
Gelatin Peptone	10.0 gram
Sodium Chloride	5.0 gram

Media BHI dibuat dengan cara mencampurkan semua media 37 gram medium disuspensikan dalam 1L air. Ditambah agar (0,1%) untuk pertumbuhan atau isolasi patogen dari darah dan bahan lain spesimen. Medium dipanaskan dan dididih agar tercampur dengan sempurna. Masukkan media ke dalam erlenmeyer dan disterilkan dengan autoklaf 121°C selama 15 menit. Media ditunggu agak dingin sekitar suhu 45°C, terakhir tuang media ke dalam tabung reaksi untuk kultur.

Lampiran 21. Media Muller Hinton Agar

MHA merupakan media yang digunakan untuk tumbuh dan berkembang biak. Media MHA memiliki komposisi sebagai berikut :

Ekstrak daging sapi	2 gram
Kasein hidrolisat	17,5 gra
Pati	1,5 gram
Agar	17 gram
Akuades	1000 ml

Media MHA dibuat dengan cara melarutkan serbuk media sebanyak 21.0 gram ke dalam 1 L akuades atau deionized. Medium dipanaskan sampai mendidih agar tercampur dengan sempurna dalam 1 menit. Disterilisasi di dalam autoklaf selama 15 menit pada suhu 121°C tekanan 1-2 atm. Tunggu hingga agak dingin sekitar suhu $40-45^{\circ}\text{C}$. Media disiapkan dan dituang kedalam cawan petri.

Lampiran 22. Media Manitol Salt Agar

Komposisi :

Beef ekstrak	1 gram
Pepton	1 gram
Manitol	10 gram
NaCl	75 gram
Panored	1.025 gram
Agar	15 gram
Aquadest	1 L

Cara pembuatan :

1. Resep medium menurut aturannya (untuk media instan biasanya tercantum pada tabel, media non – instan sesuai pustaka).
2. Timbang masing – masing bahan sesuai kebutuhan, misalnya butuh 500 ml, media maka membuat setengah resep (1 resep pada umumnya untuk 1 L media).
3. Masing – masing bahan tersebut dihomogenkan ke dalam aquades, dapat dengan cara diaduk dan dipanaskan.
4. Media dimasukan pada suatu tempat (beker, tabung, dll) untuk kemudian ditutup dan disterilisasi dengan *autoclave* pada suhu 121°C selama 15 menit.
5. Tunggu hingga adak dingin, kemudian tuang pada cawan petri.

Lampiran 23. Media agar darah

Agar darah terdiri dari bahan dasar yang mengandung 5% darah domba. Lisis butir darah merah terlihat sebagai wiayah jernih di sekitar koloni. Bila proses lisis sempurna akan terlihat di wilayah yang benar-benar jernih dan jenis hemolisisnya di sebut beta – hemolisis. Bila proses lisis tidak sempurna dan media berwarna kehijauan maka jenis hemolisisnya disebut Alpha Hemolisis.

Komposisi :

Heart extract 10 gram

Tryptose 10 gram

Nacl 5 gram

Agar-agar 15 gram

Aquadest

PH 6,9

Cara pembuatan :

1. Larutkan 40 gram bahan tersebut dengan 1 liter aquadest
2. Sterilkan dengan menggunakan *autoclave* 115 derajat celcius selama 25 menit
3. Dinginkan pada suhu 50°C kemudian tambahkan 4-8% darah domba, aduk rata
4. Tuang dalam cawan petri steril kurang lebih 200 cc secara aseptis. Hindari gelembung udara dan simpan dalam lemari es