

7. LAMPIRAN

Lampiran 1. Biji Pala Lonjong yang digunakan



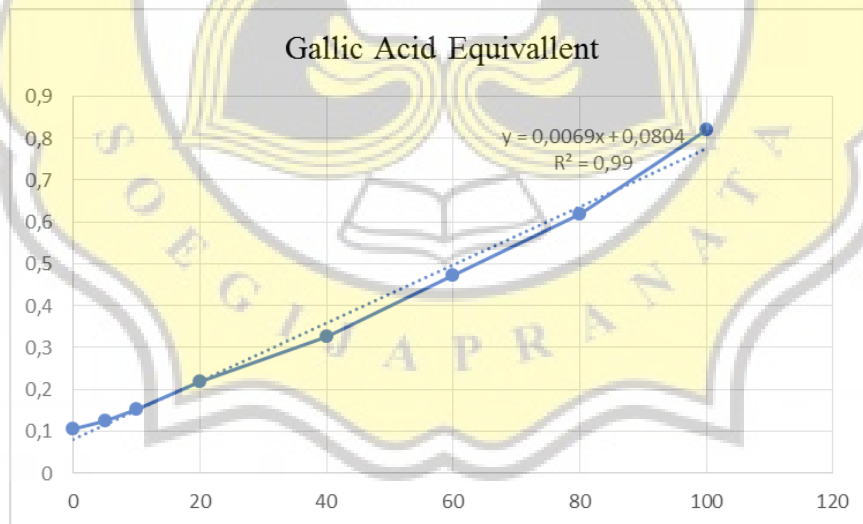
Gambar 12. Biji pala berbentuk lonjong

Lampiran 2. Kadar Air Bubuk Pala

Tabel 13. Tabel Kadar Air Bubuk Pala

Bubuk Pala	Kadar Air (%)
Batch 1 dan 2	7,16

Lampiran 3. Persamaan Standart Asam Galat



Gambar 13. Grafik Standart Asam Galat

Lampiran 4. Perhitungan Total Fenol

Persamaan Total Fenol

$$Y = 0,0069X + 0,0804$$

Tabel 14. Tabel Perhitungan Fenol

No Sampel	Absorbansi			Rata - rata	Kadar Fenol
	1	2	3		
1	0,5248	0,5249	0,5249	0,5249	64,4155
2	0,6078	0,6078	0,6079	0,6078	76,4396
3	0,4733	0,4735	0,4734	0,4734	56,9565
4	0,4870	0,4870	0,4870	0,4870	58,9275
5	0,4004	0,4004	0,4002	0,4003	46,3671
6	0,3830	0,3828	0,3827	0,3828	43,8309
7	0,4460	0,4463	0,4463	0,4462	53,0145
8	0,4526	0,4526	0,4528	0,4527	53,9517
9	0,5023	0,5020	0,5020	0,5021	61,1159
10	0,5468	0,5468	0,5469	0,5468	67,599
11	0,3071	0,3074	0,3074	0,3073	32,8841
12	0,3732	0,3733	0,3735	0,3733	42,4541
13	0,2601	0,2603	0,2599	0,2601	26,0435
14	0,4635	0,4634	0,4633	0,4634	55,5072
15	0,5802	0,5802	0,6798	0,6134	77,2464
16	0,6411	0,6408	0,6406	0,6408	81,2222
17	0,5204	0,5208	0,5207	0,5206	63,8019
1'	0,5636	0,5637	0,5639	0,5637	70,0483
2'	0,4318	0,4319	0,4320	0,4319	50,942
3'	0,5992	0,5991	0,5991	0,5991	75,1787
4'	0,4698	0,4699	0,4697	0,4698	56,4348
5'	0,3878	0,3887	0,3890	0,3885	44,6522
6'	0,6766	0,6767	0,6759	0,6764	86,3768
7'	0,3208	0,3209	0,3210	0,3209	34,8551
8'	0,4368	0,4370	0,4371	0,4370	51,6763
9'	0,4554	0,4555	0,4553	0,4554	54,3478
10'	0,3301	0,3304	0,3301	0,3302	36,2029
11'	0,4055	0,4049	0,4050	0,4051	47,0628
12'	0,4537	0,4538	0,4537	0,4537	54,1063
13'	0,3071	0,3073	0,3074	0,3073	32,8792
14'	0,4198	0,4208	0,4222	0,4209	49,3527
15'	0,6814	0,6808	0,6808	0,6810	87,0435
16'	0,7021	0,7021	0,7021	0,7021	90,1014
17'	0,6595	0,6597	0,6600	0,6597	83,9614

Lampiran 5. Pengenceran Antioksidan

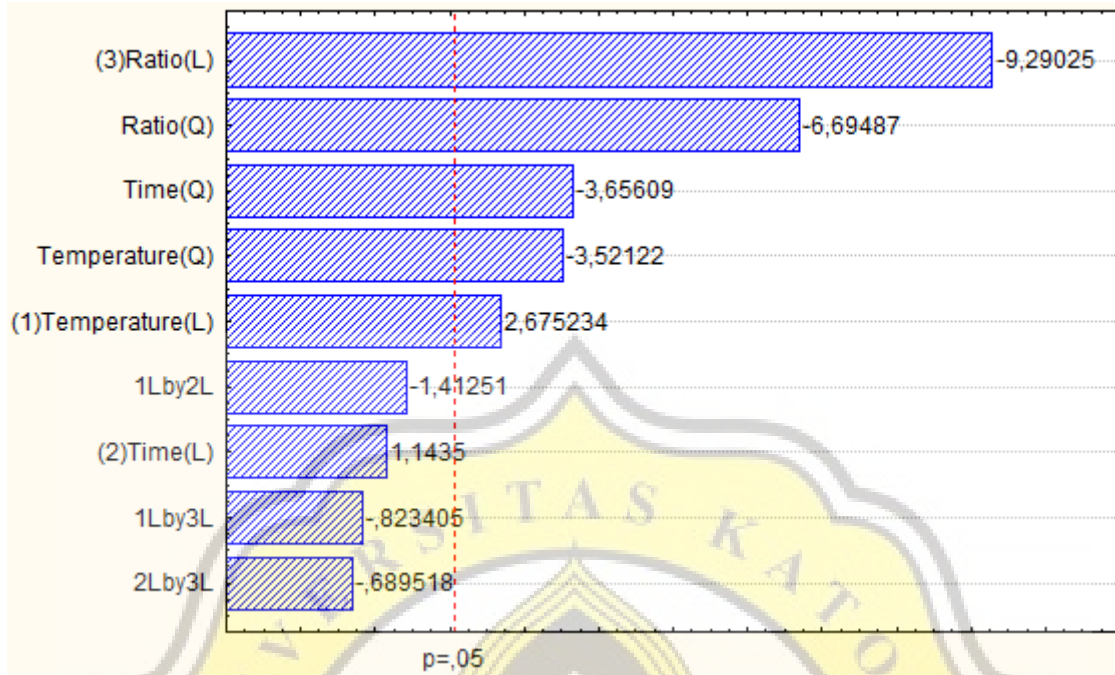
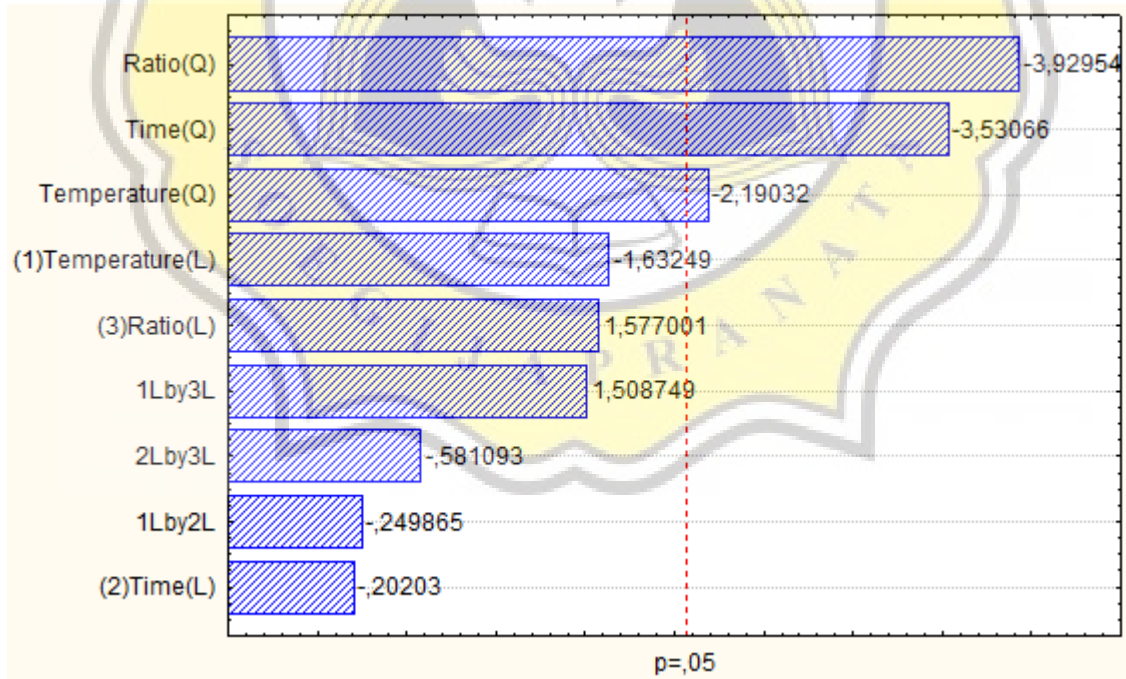
Tabel 15. Tabel Pengenceran Antioksidan

No Sampel	Berat oleoresin dalam 50 ml	Pengenceran	
		Sampel	Metanol
1	0,119	0,42	9,58
2	0,106	0,47	9,53
3	0,118	0,42	9,58
4	0,100	0,50	9,50
5	0,105	0,48	9,52
6	0,113	0,44	9,56
7	0,125	0,40	9,60
8	0,208	0,24	9,76
9	0,106	0,47	9,53
10	0,115	0,43	9,57
11	0,101	0,50	9,50
12	0,122	0,41	9,59
13	0,111	0,45	9,55
14	0,122	0,41	9,59
15	0,104	0,48	9,52
16	0,108	0,46	9,54
17	0,109	0,46	9,54
1'	0,121	0,41	9,59
2'	0,129	0,39	9,61
3'	0,124	0,40	9,60
4'	0,123	0,41	9,59
5'	0,127	0,39	9,61
6'	0,117	0,43	9,57
7'	0,104	0,48	9,52
8'	0,102	0,49	9,51
9'	0,105	0,48	9,52
10'	0,110	0,45	9,55
11'	0,104	0,48	9,52
12'	0,117	0,43	9,57
13'	0,108	0,46	9,54
14'	0,110	0,45	9,55
15'	0,113	0,44	9,56
16'	0,118	0,42	9,58
17'	0,110	0,45	9,55

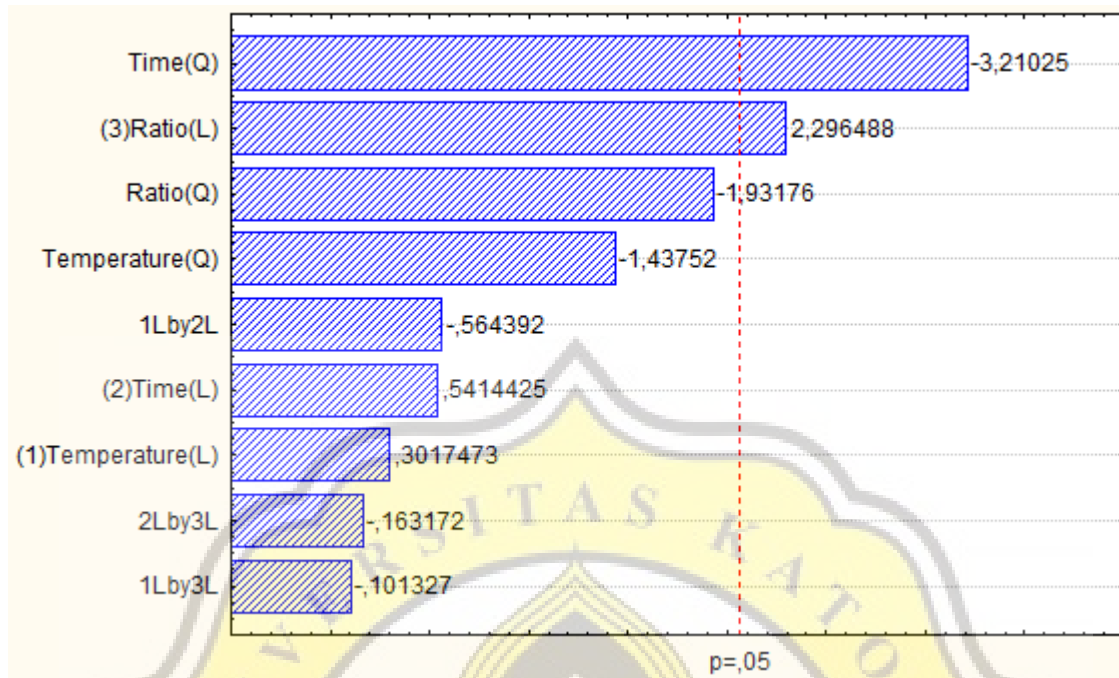
Lampiran 6. Perhitungan Aktivitas Antioksidan

Tabel 16. Tabel Perhitungan Aktivitas Antioksidan

No Sampel	Abosrbansi			Rata - rata	Aktivitas Antioksidan
	1	2	3		
1	0,4099	0,4095	0,4093	0,4096	15,92
2	0,3345	0,3343	0,3341	0,3343	31,37
3	0,3662	0,3660	0,3659	0,3660	24,85
4	0,3154	0,3155	0,3154	0,3154	35,24
5	0,3940	0,3940	0,3937	0,3939	19,13
6	0,4069	0,4068	0,4064	0,4067	16,51
7	0,3821	0,3821	0,3821	0,3821	21,56
8	0,4083	0,4083	0,4081	0,4082	16,19
9	0,3156	0,3154	0,3156	0,3155	35,22
10	0,3041	0,3040	0,3042	0,3041	37,57
11	0,3906	0,3906	0,3906	0,3906	19,81
12	0,3624	0,3624	0,3626	0,3625	25,59
13	0,4348	0,4348	0,4348	0,4348	10,74
14	0,2459	0,2458	0,2461	0,2459	49,51
15	0,2165	0,2165	0,2166	0,2165	55,55
16	0,3667	0,3666	0,3669	0,3667	24,71
17	0,4148	0,4149	0,4149	0,4149	14,83
1'	0,3912	0,3910	0,3910	0,3911	19,72
2'	0,3966	0,3970	0,3968	0,3968	18,54
3'	0,3820	0,3819	0,3820	0,3820	21,58
4'	0,3870	0,3872	0,3874	0,3872	20,51
5'	0,4065	0,4068	0,4068	0,4067	16,51
6'	0,3403	0,3405	0,3406	0,3405	30,10
7'	0,4423	0,4424	0,4424	0,4424	9,18
8'	0,3812	0,3811	0,3813	0,3812	21,74
9'	0,3619	0,3617	0,3616	0,3617	25,74
10'	0,2052	0,2054	0,2056	0,2054	57,83
11'	0,3908	0,3909	0,3911	0,3909	19,74
12'	0,3182	0,3182	0,3183	0,3182	34,67
13'	0,3692	0,3691	0,3694	0,3692	24,20
14'	0,2134	0,2136	0,2138	0,2136	56,15
15'	0,1756	0,1756	0,1758	0,1757	63,94
16'	0,2254	0,2256	0,2255	0,2255	53,71
17'	0,2527	0,2525	0,2524	0,2525	48,16

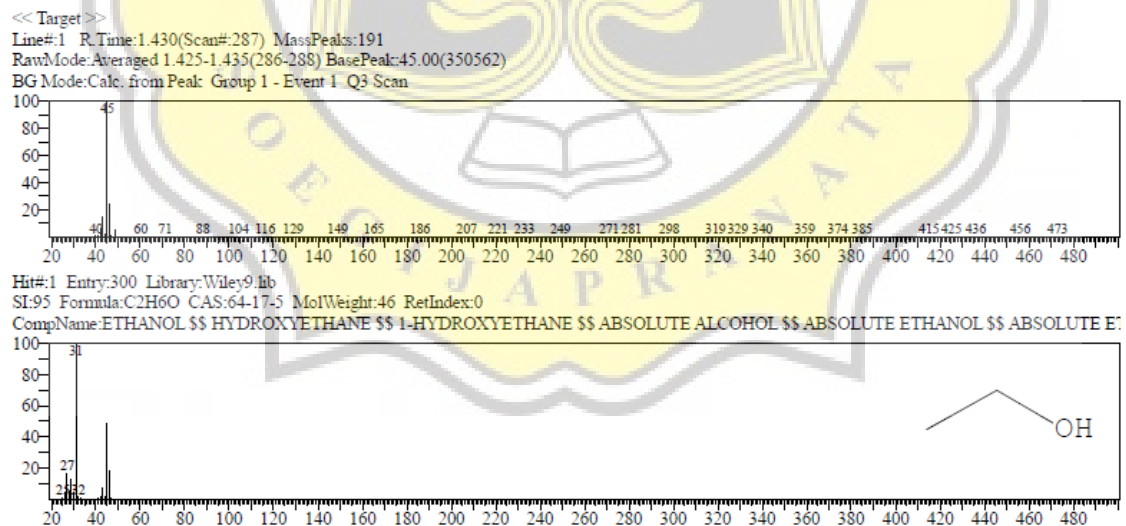
Lampiran 7. *Pareto Chart Rendemen*Gambar 14. *Pareto Chart Rendemen*Lampiran 8. *Pareto Chart Total Fenol*Gambar 15. *Pareto Chart Total Fenol*

Lampiran 9. Pareto Chart Aktivitas Antioksidan



Gambar 16. Pareto Chart Aktivitas Antioksidan

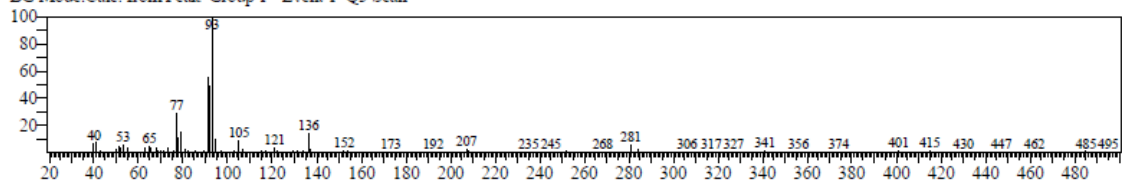
Lampiran 10. Hasil Peak GC-MS Oleoresin Pala



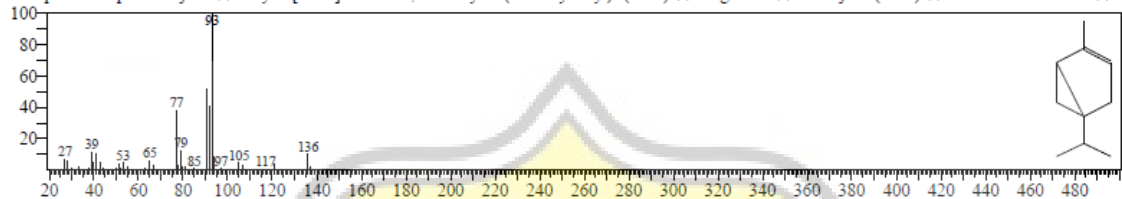
Gambar 17. GC-MS Peak Nomor 1

<< Target >>

Line#:2 R.Time:7.395(Scan#:1480) MassPeaks:265
 RawMode:Averaged 7.390-7.400(1479-1481) BasePeak:93.05(16640)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



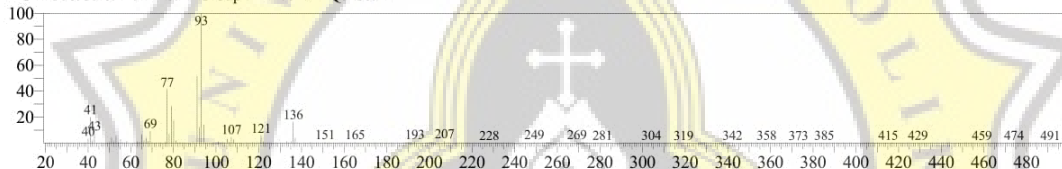
Hit#:1 Entry:33960 Library:Wiley9.lib
 SI:90 Formula:C10H16 CAS:2867-05-2 MolWeight:136 RetIndex:0
 CompName:.alpha.-Thujene \$\$ Bicyclo[3.1.0]hex-2-ene, 2-methyl-5-(1-methylethyl)- (CAS) \$\$ Origanene \$\$ 3-Thujene (CAS) \$\$ ALPHA-THUJENE \$\$:



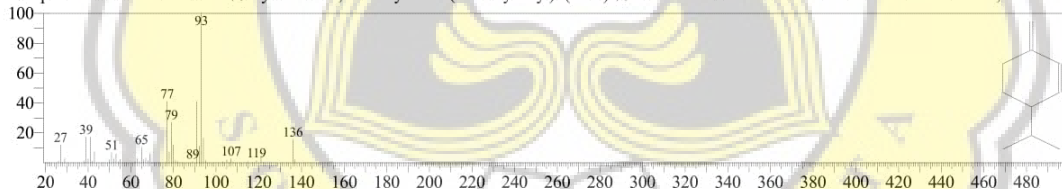
Gambar 18. GC-MS Peak Nomor 2

<< Target >>

Line#:3 R.Time:8.820(Scan#:1765) MassPeaks:239
 RawMode:Averaged 8.815-8.825(1764-1766) BasePeak:93.10(34303)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



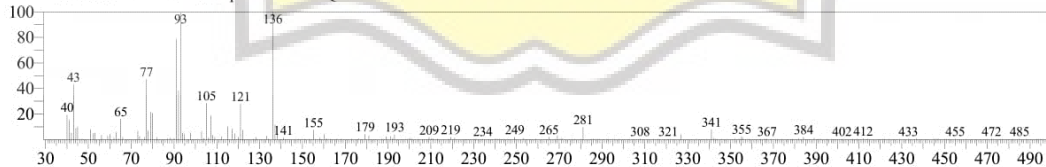
Hit#:1 Entry:33877 Library:Wiley9.lib
 SI:94 Formula:C10H16 CAS:555-10-2 MolWeight:136 RetIndex:0
 CompName:.beta.-Phellandrene \$\$ Cyclohexene, 3-methylene-6-(1-methylethyl)- (CAS) \$\$ 3-ISOPROPYL-6-METHYLENE-CYCLOHEXENE, 2-PARA-1



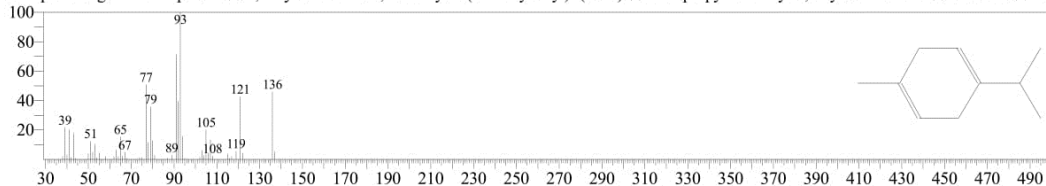
Gambar 19. GC-MS Peak Nomor 3

<< Target >>

Line#:4 R.Time:11.740(Scan#:2349) MassPeaks:238
 RawMode:Averaged 11.735-11.745(2348-2350) BasePeak:136.15(5476)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



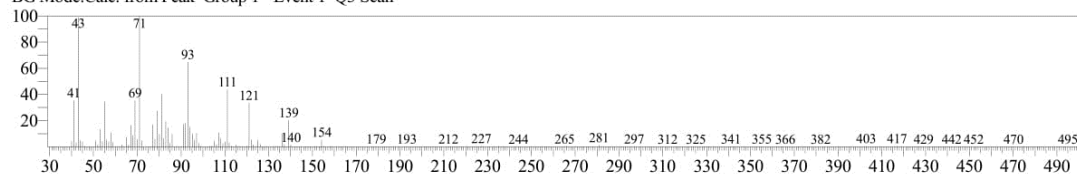
Hit#:1 Entry:33769 Library:Wiley9.lib
 SI:82 Formula:C10H16 CAS:99-85-4 MolWeight:136 RetIndex:0
 CompName:.gamma.-Terpinene \$\$ 1,4-Cyclohexadiene, 1-methyl-4-(1-methylethyl)- (CAS) \$\$ 1-Isopropyl-4-methyl-1,4-cyclohexadiene \$\$ Moslene \$\$ Cri



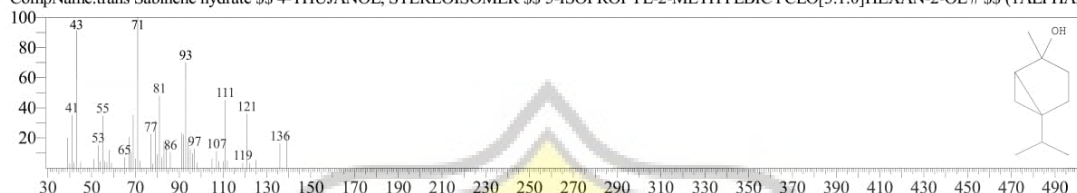
Gambar 20. GC-MS Peak Nomor 4

<< Target >>

Line#:5 R.Time:11.830(Scan#:2367) MassPeaks:268
 RawMode:Averaged 11.825-11.835(2366-2368) BasePeak:71.05(43303)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



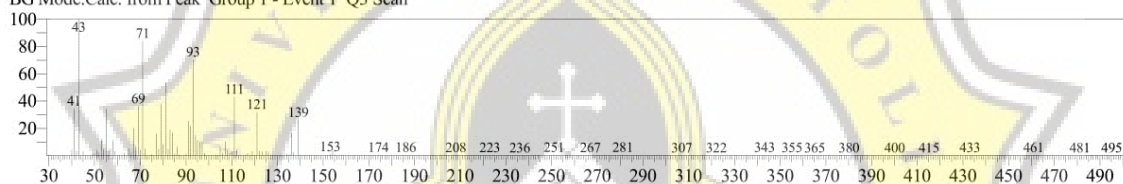
Hit#:1 Entry:58536 Library:Wiley9.lib
 SI:97 Formula:C10H18O CAS:17699-16-0 MolWeight:154 RetIndex:0
 CompName:trans Sabinene hydrate \$\$ 4-THUJANOL, STEREOISOMER \$\$ 5-ISOPROPYL-2-METHYLBICYCLO[3.1.0]HEXAN-2-OL # \$\$ (1ALPHA,



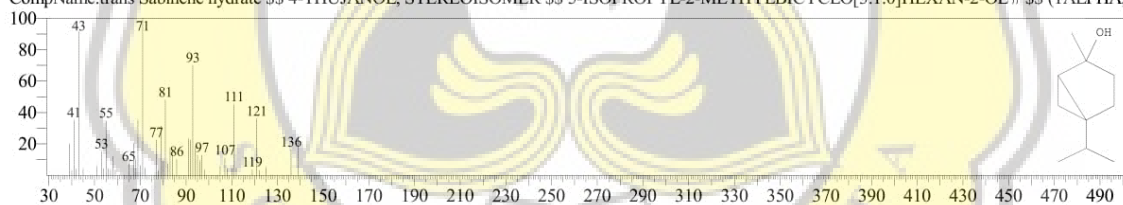
Gambar 21. GC-MS Peak Nomor 5

<< Target >>

Line#:6 R.Time:12.790(Scan#:2559) MassPeaks:262
 RawMode:Averaged 12.785-12.795(2558-2560) BasePeak:43.00(42122)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



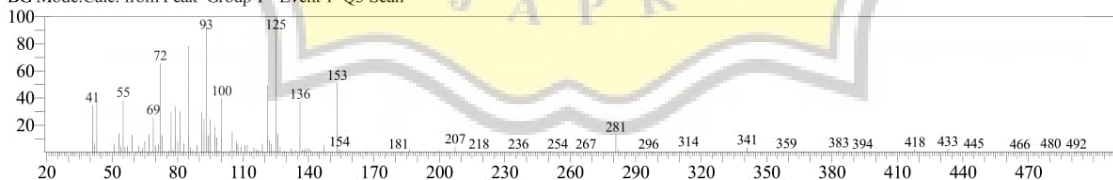
Hit#:1 Entry:58536 Library:Wiley9.lib
 SI:97 Formula:C10H18O CAS:17699-16-0 MolWeight:154 RetIndex:0
 CompName:trans Sabinene hydrate \$\$ 4-THUJANOL, STEREOISOMER \$\$ 5-ISOPROPYL-2-METHYLBICYCLO[3.1.0]HEXAN-2-OL # \$\$ (1ALPHA,



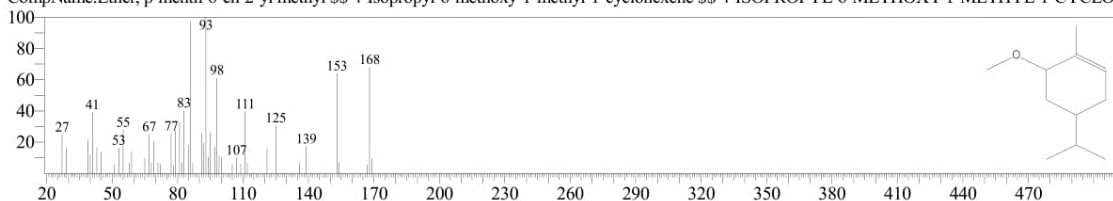
Gambar 22. GC-MS Peak Nomor 6

<< Target >>

Line#:7 R.Time:12.975(Scan#:2596) MassPeaks:292
 RawMode:Averaged 12.970-12.980(2595-2597) BasePeak:125.10(7035)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



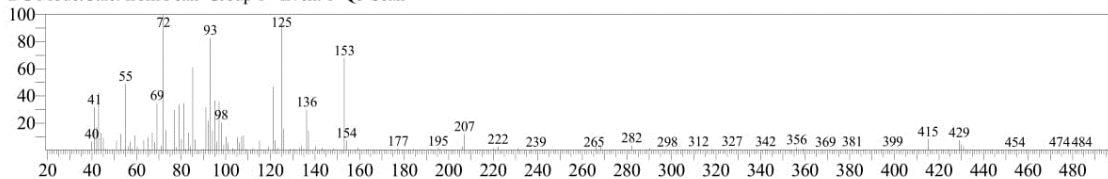
Hit#:1 Entry:81222 Library:Wiley9.lib
 SI:70 Formula:C11H20O CAS:121209-92-5 MolWeight:168 RetIndex:0
 CompName:Ether, p-menth-6-en-2-yl methyl \$\$ 4-Isopropyl-6-methoxy-1-methyl-1-cyclohexene \$\$ 4-ISOPROPYL-6-METHOXY-1-METHYL-1-CYCLO



Gambar 23. GC-MS Peak Nomor 7

<< Target >>

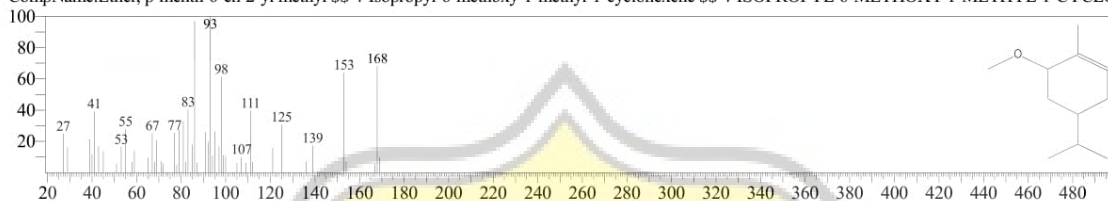
Line#:8 R.Time:13.665(Scan#:2734) MassPeaks:253
 RawMode:Averaged 13.660-13.670(2733-2735) BasePeak:72.00(6257)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



Hit#:1 Entry:81222 Library:Wiley9.lib

SI:71 Formula:C11H20O CAS:121209-92-5 MolWeight:168 RetIndex:0

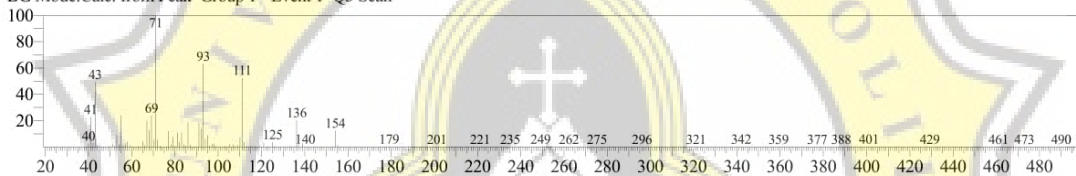
CompName:Ether, p-menth-6-en-2-yl methyl \$\$ 4-Isopropyl-6-methoxy-1-methyl-1-cyclohexene \$\$ 4-ISOPROPYL-6-METHOXY-1-METHYL-1-CYCLOHEXENE



Gambar 24. GC-MS Peak Nomor 8

<< Target >>

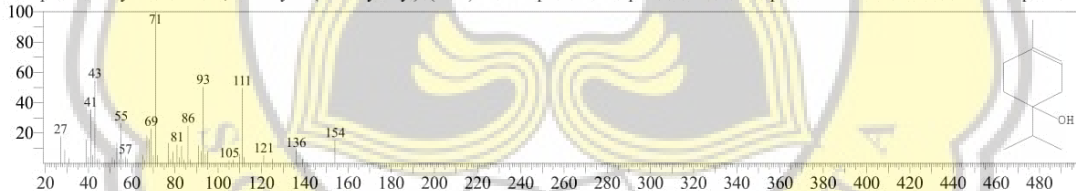
Line#:9 R.Time:15.270(Scan#:3055) MassPeaks:287
 RawMode:Averaged 15.265-15.275(3054-3056) BasePeak:71.05(173729)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



Hit#:1 Entry:58079 Library:Wiley9.lib

SI:94 Formula:C10H18O CAS:562-74-3 MolWeight:154 RetIndex:0

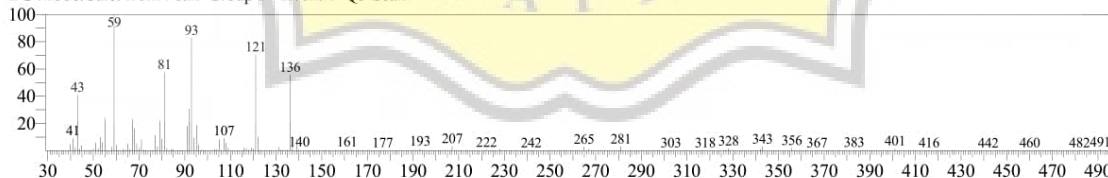
CompName:3-Cyclohexen-1-ol, 4-methyl-1-(1-methylethyl)- (CAS) \$\$ 4-Terpineol \$\$ Terpinene-4-ol \$\$ 1-Terpinen-4-ol \$\$ 4-Carvomenthenol \$\$ p-Menth-



Gambar 25. GC-MS Peak Nomor 9

<< Target >>

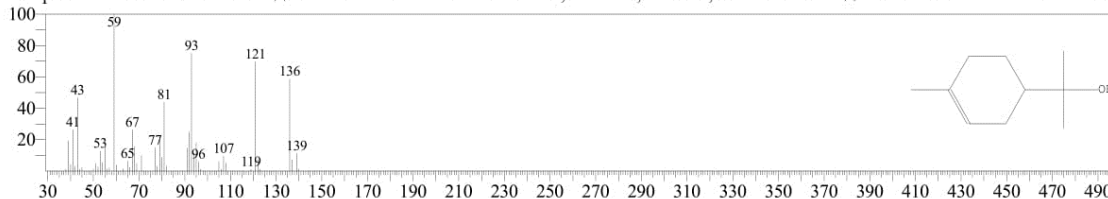
Line#:10 R.Time:15.650(Scan#:3131) MassPeaks:232
 RawMode:Averaged 15.645-15.655(3130-3132) BasePeak:59.05(13660)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



Hit#:1 Entry:58548 Library:Wiley9.lib

SI:93 Formula:C10H18O CAS:98-55-5 MolWeight:154 RetIndex:0

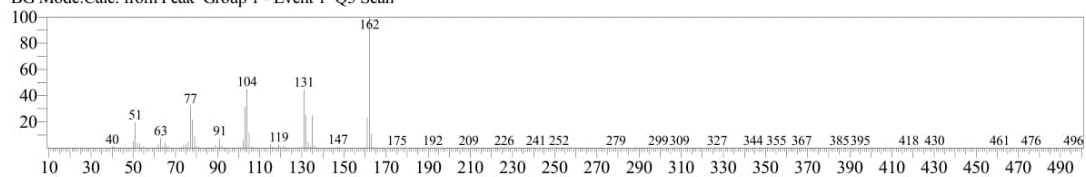
CompName:.ALPHA. TERPINEOL \$\$ 3-CYCLOHEXENE-1-METHANOL, .ALPHA.,.ALPHA.,4-TRIMETHYL- \$\$ 3-CYCLOHEXENE-1-METHANOL



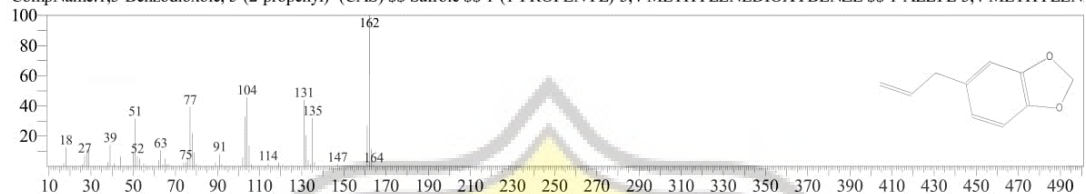
Gambar 26. GC-MS Peak Nomor 10

<< Target >>

Line#:11 R.Time:18.285(Scan#:3658) MassPeaks:264
 RawMode:Averaged 18.280-18.290(3657-3659) BasePeak:162.05(968257)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



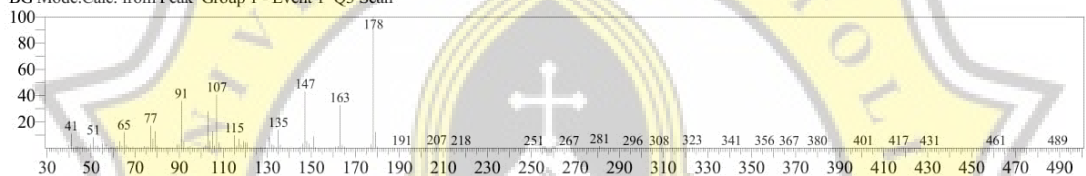
Hit#:1 Entry:69335 Library:Wiley9.lib
 SI:96 Formula:C10H10O2 CAS:94-59-7 MolWeight:162 RetIndex:0
 CompName:1,3-Benzodioxole, 5-(2-propenyl)- (CAS) \$\$ Safrole \$\$ 1-(1-PROPENYL)-3,4-METHYLENEDIOXYBENZE \$\$ 1-ALLYL-3,4-METHYLEN



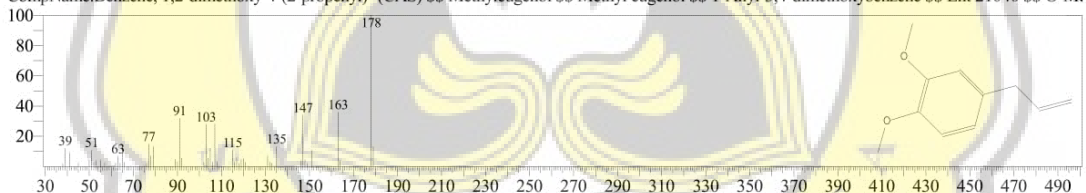
Gambar 27. GC-MS Peak Nomor 11

<< Target >>

Line#:12 R.Time:21.360(Scan#:4273) MassPeaks:251
 RawMode:Averaged 21.355-21.365(4272-4274) BasePeak:178.10(70105)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



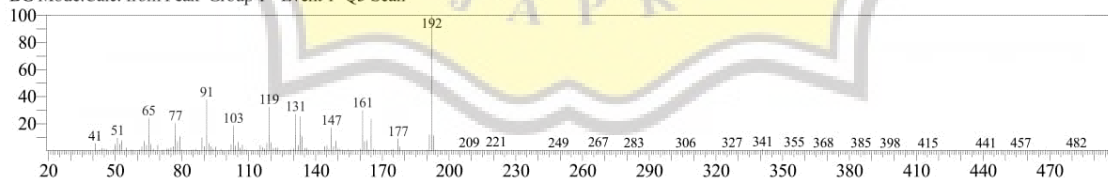
Hit#:1 Entry:97477 Library:Wiley9.lib
 SI:95 Formula:C11H14O2 CAS:93-15-2 MolWeight:178 RetIndex:0
 CompName:Benzene, 1,2-dimethoxy-4-(2-propenyl)- (CAS) \$\$ Methylugenol \$\$ Methyl eugenol \$\$ 1-Allyl-3,4-dimethoxybenzene \$\$ Ent 21040 \$\$ O-Me



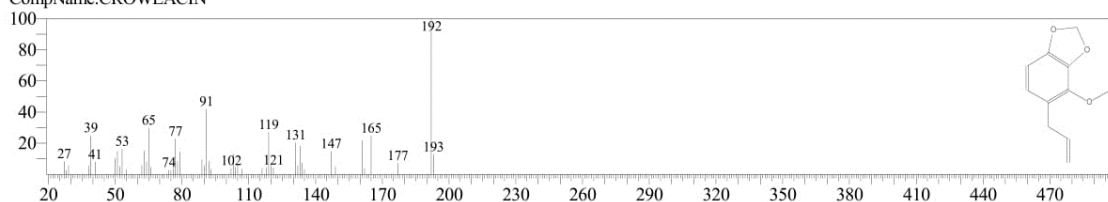
Gambar 28. GC-MS Peak Nomor 12

<< Target >>

Line#:13 R.Time:24.235(Scan#:4848) MassPeaks:294
 RawMode:Averaged 24.230-24.240(4847-4849) BasePeak:192.10(33842)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



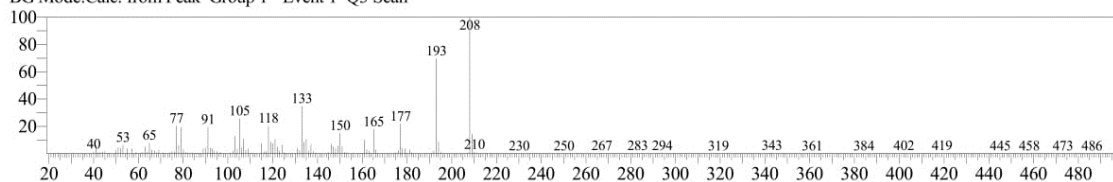
Hit#:1 Entry:124470 Library:Wiley9.lib
 SI:90 Formula:C11H12O3 CAS:484-34-4 MolWeight:192 RetIndex:0
 CompName:CROWEACIN



Gambar 29. GC-MS Peak Nomor 13

<< Target >>

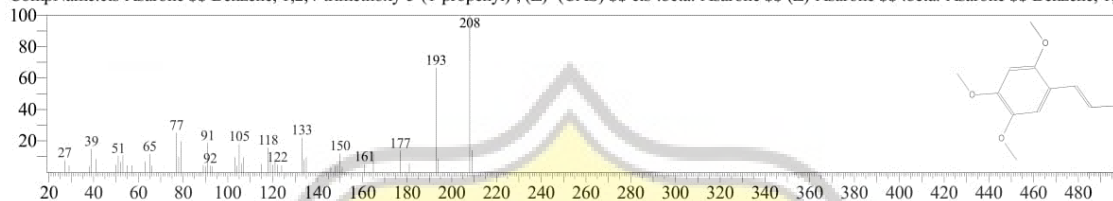
Line#:14 R.Time:25.055(Scan#:5012) MassPeaks:307
 RawMode:Averaged 25.050-25.060(5011-5013) BasePeak:208.10(81861)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



Hit#:1 Entry:160270 Library:Wiley9.lib

SI:92 Formula:C12H16O3 CAS:5273-86-9 MolWeight:208 RetIndex:0

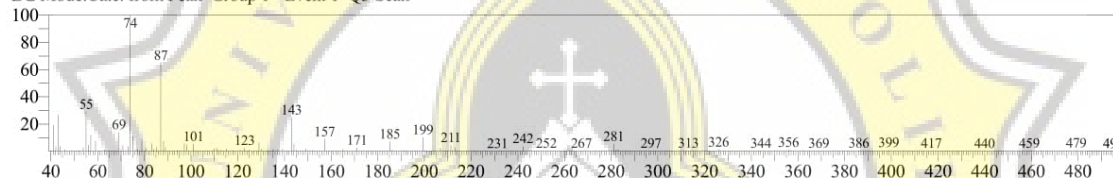
CompName: cis-Asarone \$\$ Benzene, 1,2,4-trimethoxy-5-(1-propenyl)-, (Z)- (CAS) \$\$ cis-.beta.-Asarone \$\$ (Z)-Asarone \$\$.beta.-Asarone \$\$ Benzene, 1,2



Gambar 30. GC-MS Peak Nomor 14

<< Target >>

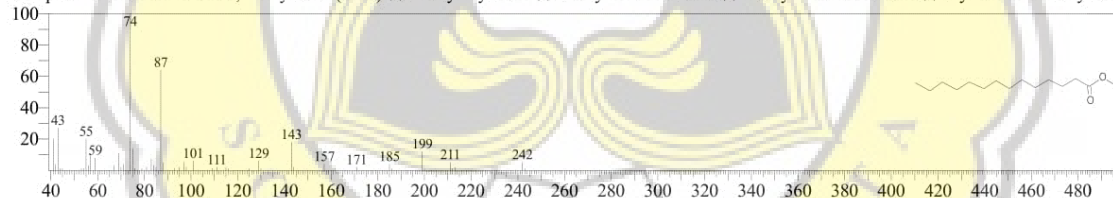
Line#:15 R.Time:29.390(Scan#:5879) MassPeaks:217
 RawMode:Averaged 29.385-29.395(5878-5880) BasePeak:74.00(16012)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



Hit#:1 Entry:241481 Library:Wiley9.lib

SI:90 Formula:C15H30O2 CAS:124-10-7 MolWeight:242 RetIndex:0

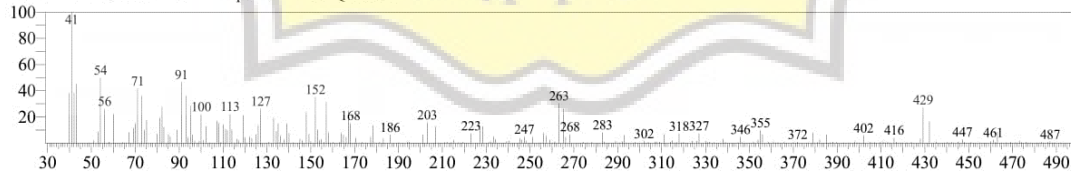
CompName: Tetradecanoic acid, methyl ester (CAS) \$\$ Methyl myristate \$\$ Methyl tetradecanoate \$\$ Methyl n-tetradecanoate \$\$ Myristic acid methyl ester



Gambar 31. GC-MS Peak Nomor 15

<< Target >>

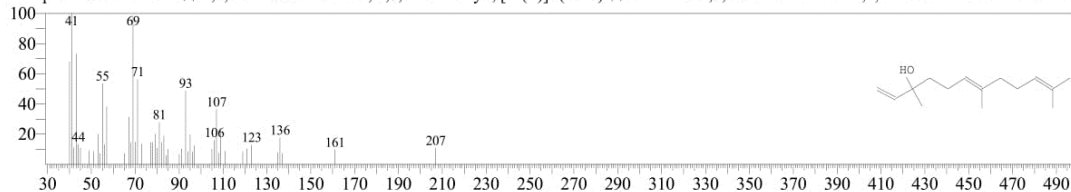
Line#:16 R.Time:37.840(Scan#:7569) MassPeaks:252
 RawMode:Averaged 37.835-37.845(7568-7570) BasePeak:41.00(2019)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



Hit#:1 Entry:193933 Library:Wiley9.lib

SI:50 Formula:C15H26O CAS:142-50-7 MolWeight:222 RetIndex:0

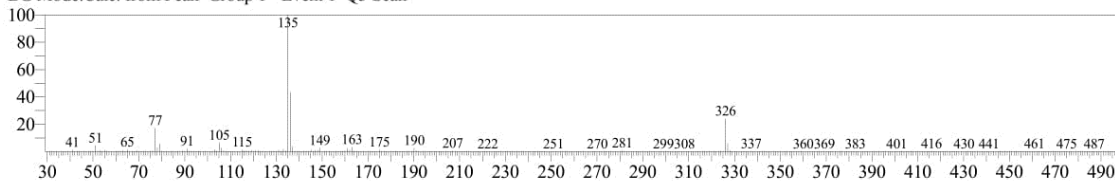
CompName: d-Nerolidol \$\$ 1,6,10-Dodecatrien-3-ol, 3,7,11-trimethyl-, [S-(Z)]- (CAS) \$\$.ALPHA.-3,7,11-TRIMETHYL-1,6,10-DODECATRIEN-3-OL \$\$



Gambar 32. GC-MS Peak Nomor 16

<< Target >>

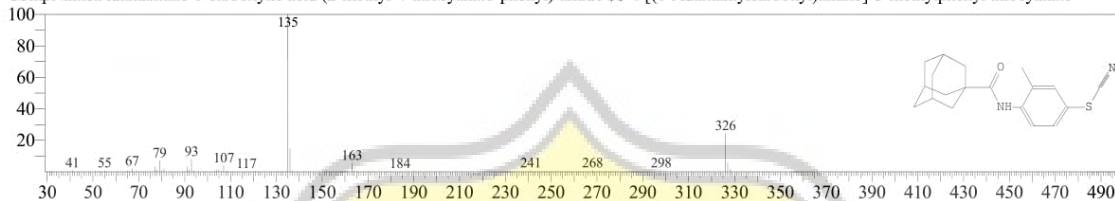
Line#:17 R.Time:44.510(Scan#:8903) MassPeaks:288
 RawMode:Averaged 44.505-44.515(8902-8904) BasePeak:135.05(390418)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



Hit#:1 Entry:428366 Library:Wiley9.lib

SI:84 Formula:C19H22N2OS CAS:0-00-0 MolWeight:326 RetIndex:0

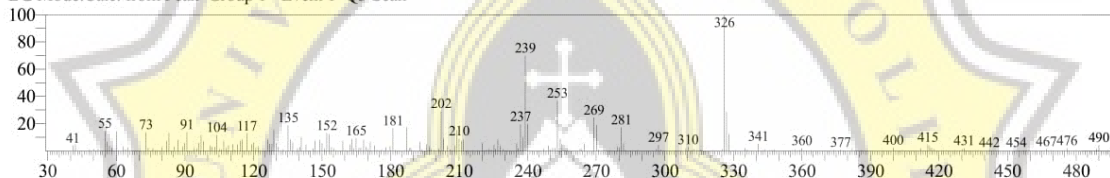
CompName:Adamantane-1-carboxylic acid (2-methyl-4-thiocyanato-phenyl)-amide SS 4-[(1-Adamantylcarbonyl)amino]-3-methylphenyl thiocyanate



Gambar 33. GC-MS Peak Nomor 17

<< Target >>

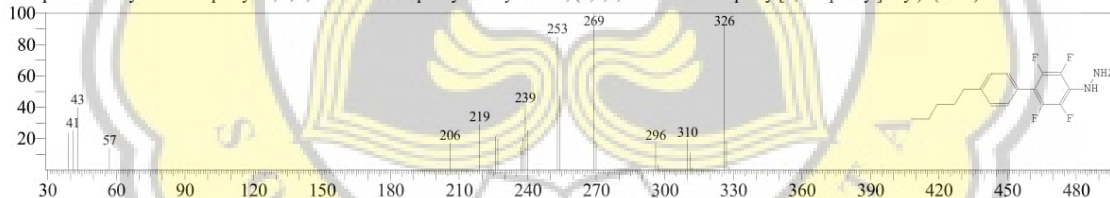
Line#:18 R.Time:44.985(Scan#:8998) MassPeaks:256
 RawMode:Averaged 44.980-44.990(8997-8999) BasePeak:326.10(8804)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



Hit#:1 Entry:427756 Library:Wiley9.lib

SI:51 Formula:C17H18F4N2 CAS:131894-80-9 MolWeight:326 RetIndex:0

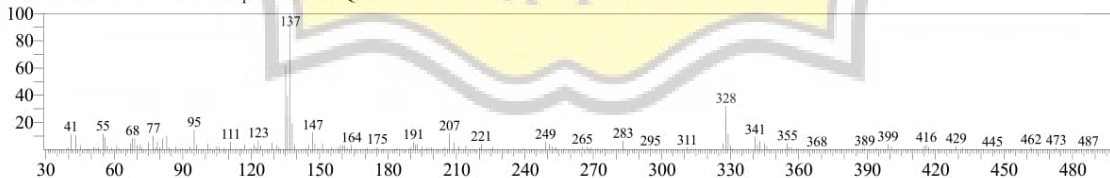
CompName:4'-Hydrazino-4-pentyl-2',3',5',6'-tetrafluorobiphenyl SS Hydrazine, (2,3,5,6-tetrafluoro-4'-pentyl[1,1'-biphenyl]-4-yl)- (CAS)



Gambar 34. GC-MS Peak Nomor 18

<< Target >>

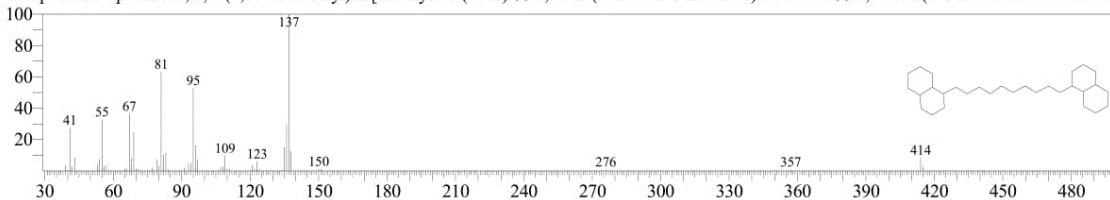
Line#:19 R.Time:45.490(Scan#:9099) MassPeaks:265
 RawMode:Averaged 45.485-45.495(9098-9100) BasePeak:137.05(13150)
 BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



Hit#:1 Entry:558587 Library:Wiley9.lib

SI:62 Formula:C30H54 CAS:55268-64-9 MolWeight:414 RetIndex:0

CompName:Naphthalene, 1,1'-(1,10-decanediyl)bis[decahydro- (CAS) SS 1,10-DI.(ALPHA-DECALYL)DECANE SS 1,10-BIS(1-DECAHYDRONAPHTH



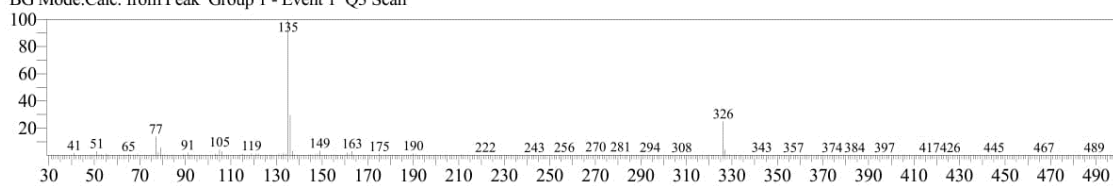
Gambar 35. GC-MS Peak Nomor 19

<< Target >>

Line#:20 R.Time:45.865(Scan#:9174) MassPeaks:259

RawMode:Averaged 45.860-45.870(9173-9175) BasePeak:135.05(213903)

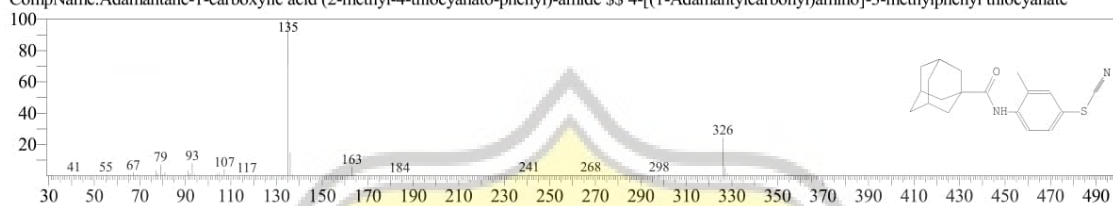
BG Mode:Calc. from Peak Group 1 - Event 1 Q3 Scan



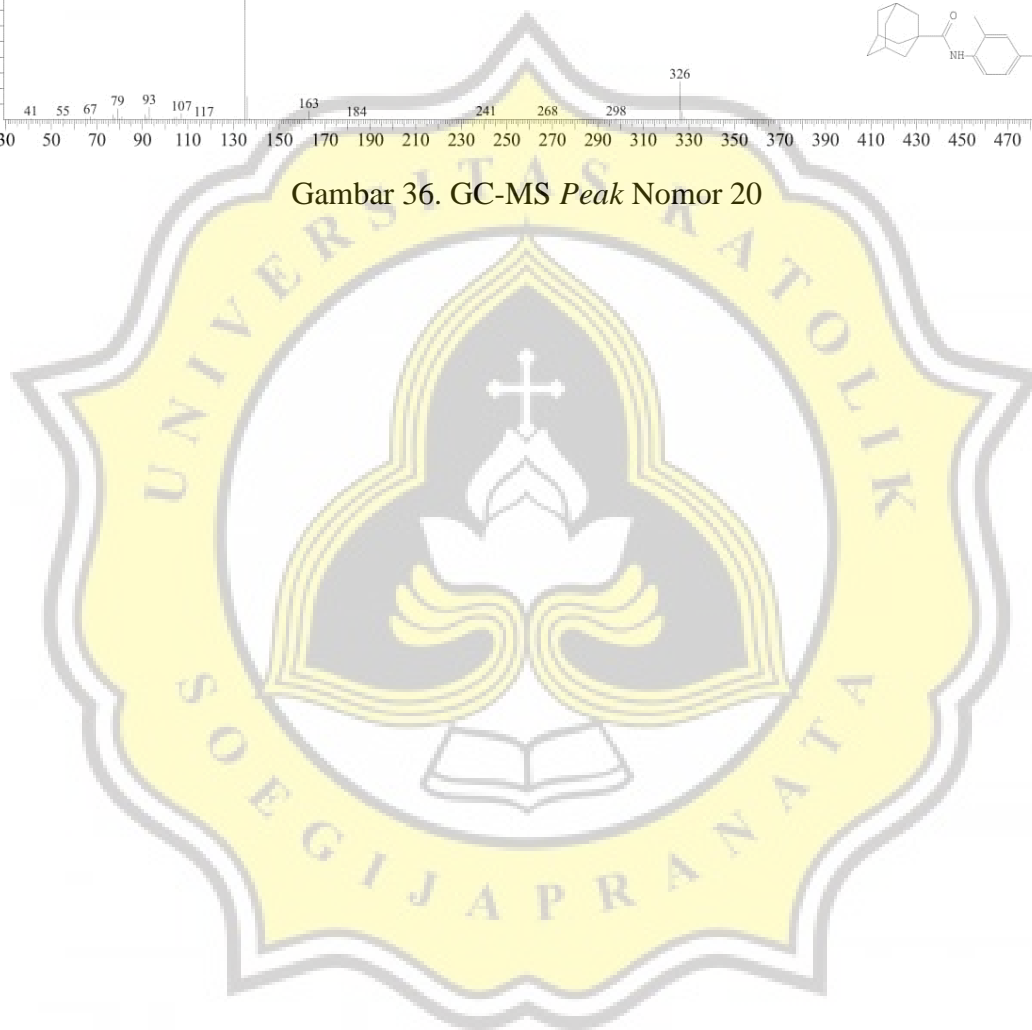
Hit#:1 Entry:428366 Library:Wiley9.lib

SI:86 Formula:C₁₉H₂₂N₂OS CAS:0-00-0 MolWeight:326 RetIndex:0

CompName:Adamantane-1-carboxylic acid (2-methyl-4-thiocyanato-phenyl)-amide SS 4-[(1-Adamantylcarbonyl)amino]-3-methylphenyl thiocyanate



Gambar 36. GC-MS Peak Nomor 20



Lampiran 11. Hasil UNICHECK



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