

**Lampiran 1. Perhitungan Nilai  $R_f$  Hasil Analisis Kromatografi Lapis Tipis  
Ekstrak Pekat Karang Lunak *Lemnalia* sp.**

$$R_f = \frac{\text{Jarak yang ditempuh oleh senyawa (cm)}}{\text{Jarak yang ditempuh oleh pelarut (cm)}}$$

$$1. R_f = \frac{1,2}{4,4} = 0,27$$

$$2. R_f = \frac{1,9}{4,4} = 0,43$$

$$3. R_f = \frac{3}{4,4} = 0,68$$

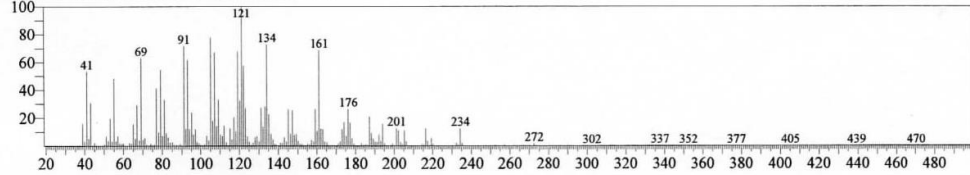


## Lampiran 2. Profil GC-MS Ekstrak Pekat Karang Lunak *Lemnalia* sp.

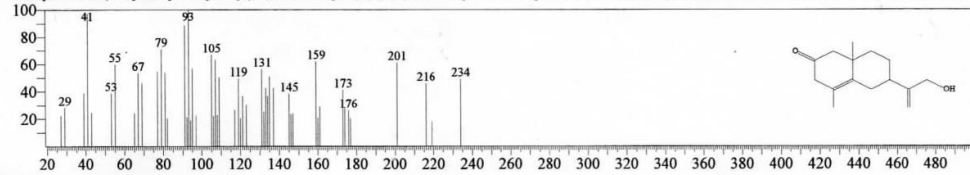
Library

<<Target >>

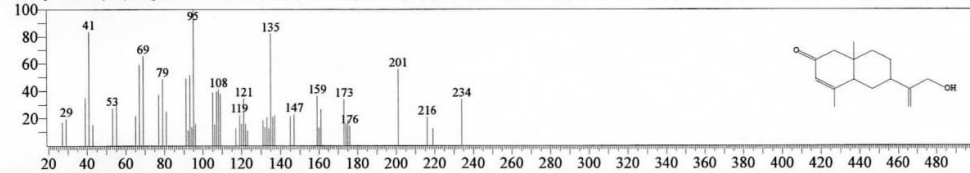
Line#1 R.Time:11.405(Scar#:1682) MassPeak:320  
RawMode:Averaged 11.400-11.410(1681-683) BasePeak:121.20(36076)  
BG Mode:Calc. from Peak Group 1 - Event 1 Scan



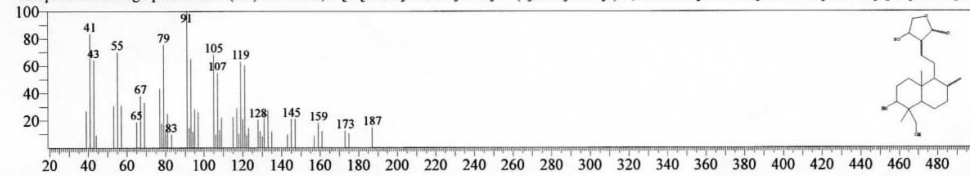
Hit#1 Entry:221774 Library:Wiley9.lib  
SI:81 Formula:C15H22O2 CAS:0-00-0 MolWeight:234 RetIndex:0  
CompName:6-(1-Hydroxymethylvinyl)-4,8a-dimethyl-3,5,6,7,8,8a-hexahydro-1H-naphthalen-2-one SS 6-(1-HYDROXYMETHYL-VINYL)-4,8A-DIMETHYL-



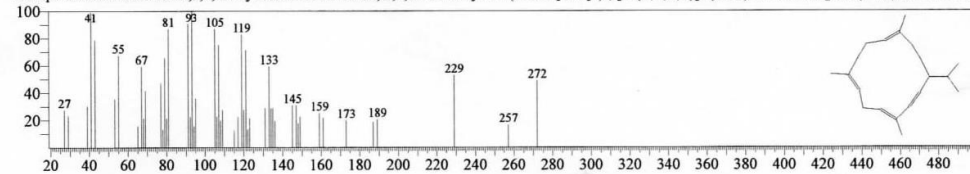
Hit#2 Entry:221776 Library:Wiley9.lib  
SI:79 Formula:C15H22O2 CAS:109897-57-6 MolWeight:234 RetIndex:0  
CompName:2(1H)-Naphthalenone, 4a,5,6,7,8,8a-hexahydro-6-[1-(hydroxymethyl)ethenyl]-4,8a-dimethyl-, [4a-(4.alpha.,6.alpha.,8a.beta.)]- (CAS) SS 2(1H)-



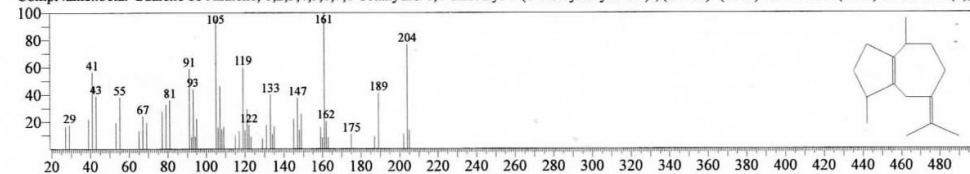
Hit#3 Entry:471761 Library:Wiley9.lib  
SI:79 Formula:C20H30O5 CAS:5508-58-7 MolWeight:350 RetIndex:0  
CompName:Andrographolide SS 2(3H)-Furanone, 3-[2-[decahydro-6-hydroxy-5-(hydroxymethyl)-5,8a-dimethyl-2-methylene-1-naphthalenyl]ethylidene]dihydro-



Hit#4 Entry:312340 Library:Wiley9.lib  
SI:79 Formula:C20H32 CAS:1898-13-1 MolWeight:272 RetIndex:0  
CompName:Cembrene SS 1,3,6,10-Cyclotetradecatetraene, 3,7,11-trimethyl-14-(1-methylethyl)-, [S-(E,Z,E,E)]- (CAS) SS Thunbergene (CAS) SS Thunberg



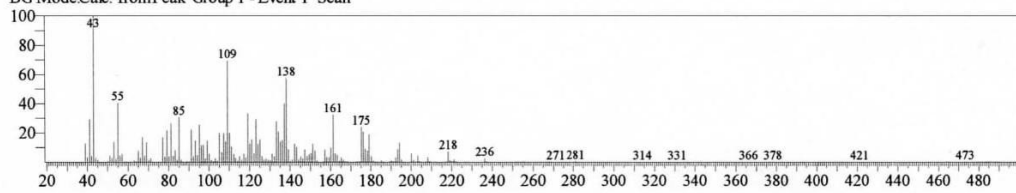
Hit#5 Entry:151956 Library:Wiley9.lib  
SI:78 Formula:C15H24 CAS:88-84-6 MolWeight:204 RetIndex:0  
CompName:beta-Guaiene SS Azulene, 1,2,3,4,5,6,7,8-octahydro-1,4-dimethyl-7-(1-methylethylidene)-, (1S-cis)- (CAS) SS Guaiene (CAS) SS Guaia-1(5),7



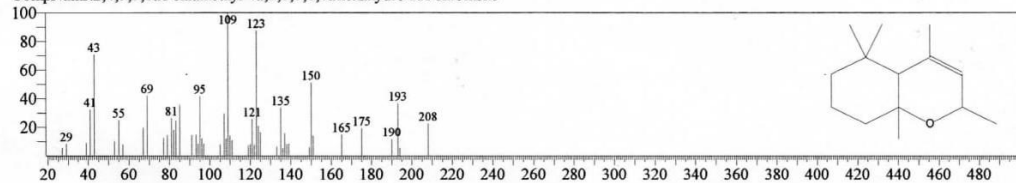
Hasil Penelusuran *Similarity Search* Berdasarkan Database

<< Target >>

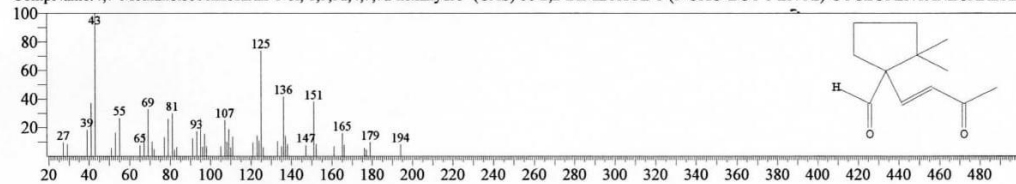
Line# 2 R.Time: 11.545(Scan#: 1710) MassPeak: 319  
RawMode: Averaged 11.540-11.550(1709-1711) BasePeak: 43.05(104631)  
BG Mode: Calc. from Peak Group 1 - Event 1 Scan



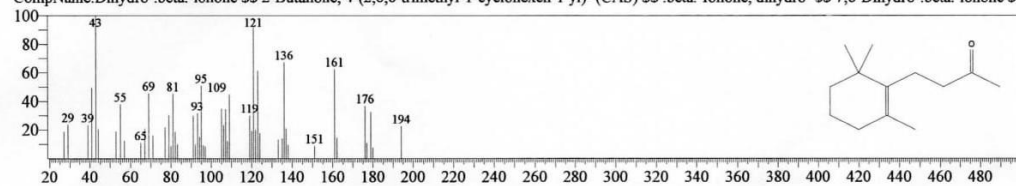
Hit# 1 Entry: 161771 Library: Wiley9.lib  
SI: 74 Formula: C<sub>14</sub>H<sub>24</sub>O CAS: 0-00-0 MolWeight: 208 RetIndex: 0  
CompName: 2,4,5,8a-Pentamethyl-4a,5,6,7,8,8a-hexahydro-2H-chromene



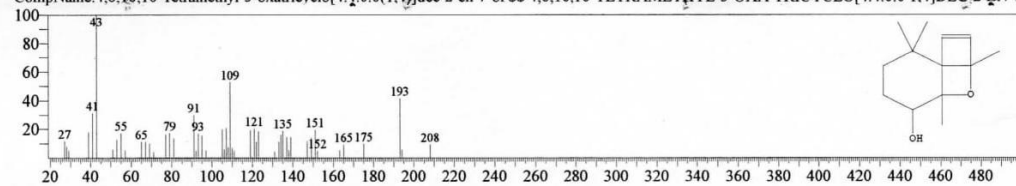
Hit# 2 Entry: 129558 Library: Wiley9.lib  
SI: 73 Formula: C<sub>12</sub>H<sub>18</sub>O<sub>2</sub> CAS: 100557-82-2 MolWeight: 194 RetIndex: 0  
CompName: 4,7-Methanoisobenzofuran-1-ol, 1,3,3a,4,7,7a-hexahydro- (CAS) \$\$ 2,2-DIMETHYL-1-(3-OXO-BUT-1-ENYL)-CYCLOPENTANECARBAL



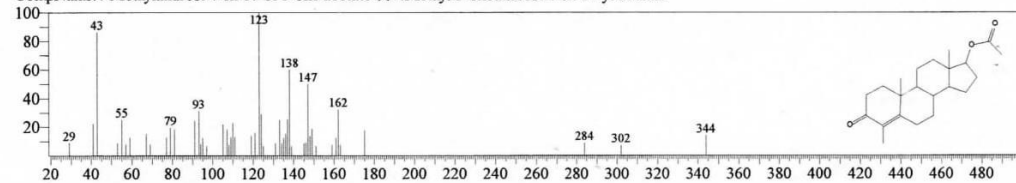
Hit# 3 Entry: 130438 Library: Wiley9.lib  
SI: 73 Formula: C<sub>13</sub>H<sub>22</sub>O CAS: 17283-81-7 MolWeight: 194 RetIndex: 0  
CompName: Dihydro- $\beta$ -ionone \$\$ 2-Butanone, 4-(2,6,6-trimethyl-1-cyclohexen-1-yl)- (CAS) \$\$  $\beta$ -ionone, dihydro- \$\$ 7,8-Dihydro- $\beta$ -ionone \$\$



Hit# 4 Entry: 161169 Library: Wiley9.lib  
SI: 73 Formula: C<sub>13</sub>H<sub>20</sub>O<sub>2</sub> CAS: 97371-50-1 MolWeight: 208 RetIndex: 0  
CompName: 4,6,10,10-Tetramethyl-5-oxatricyclo[4.4.0.0(1.4)]dec-2-en-7-ol \$\$ 4,6,10,10-TETRAMETHYL-5-OXA-TRICYCLO[4.4.0.0(1.4)]DEC-2-EN-7-



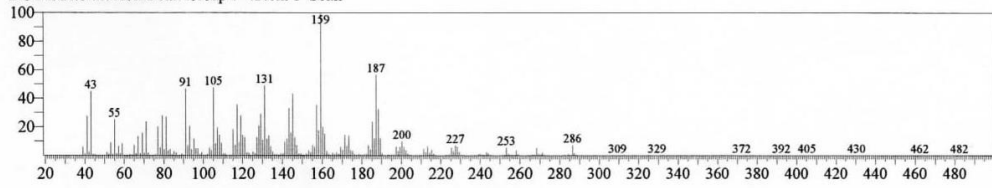
Hit# 5 Entry: 462167 Library: Wiley9.lib  
SI: 72 Formula: C<sub>22</sub>H<sub>32</sub>O<sub>3</sub> CAS: 1923-21-3 MolWeight: 344 RetIndex: 0  
CompName: 4-Methylandrosta-4-en-17-ol-3-one acetate \$\$ 4-Methyl-3-oxoandrosta-4-en-17-yl acetate



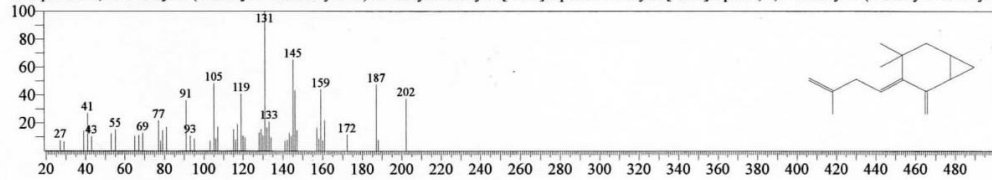
Hasil Penelusuran *Similarity Search* Berdasarkan Database

<<Target >>

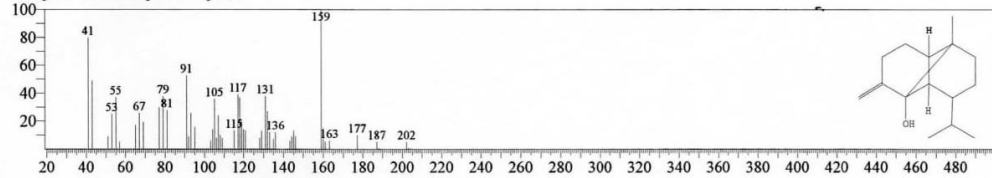
Line#3 R. Time:12.075(Scar#:1816) MassPeak:321  
RawMode:Averaged 12.070-12.080(1815-1817) BasePeak:159.20(47372)  
BG Mode:Cal. fromPeak Group 1 - Event 1 Scan



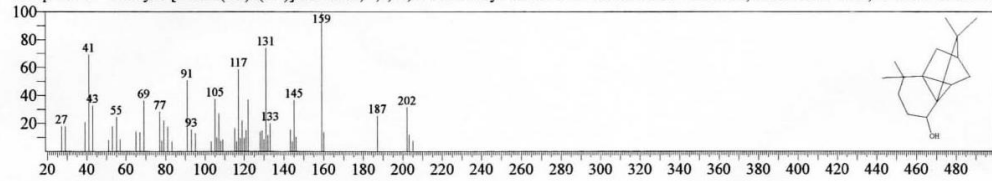
Hit#1 Entry:147527 Library:Wiley9.lib  
SI:76 Formula:C15H22 CAS:79718-83-5 MolWeight:202 RetIndex:0  
CompName:4,4-Dimethyl-3-(3-methyl-3-buten-1-yliden)-2-methylidenebicyclo[4.1.0]heptane \$S\$ Bicyclo[4.1.0]heptane, 4,4-dimethyl-3-(3-methyl-3-butenylid



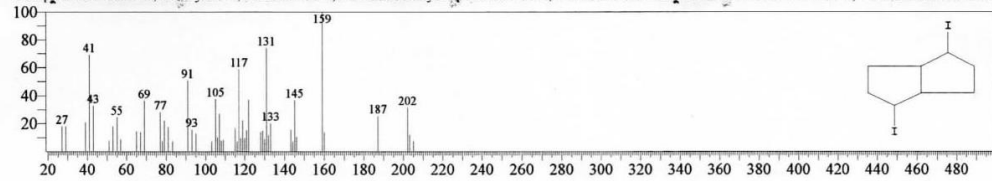
Hit#2 Entry:188778 Library:Wiley9.lib  
SI:75 Formula:C15H24O CAS:0-00-0 MolWeight:220 RetIndex:0  
CompName:beta.-copaen-4 .alpha.-ol



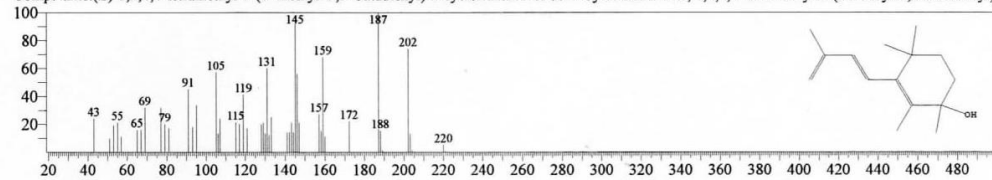
Hit#3 Entry:188941 Library:Wiley9.lib  
SI:75 Formula:C15H24O CAS:74842-43-6 MolWeight:220 RetIndex:0  
CompName:7-Tetracyclo[6.2.1.0(3.8)0(3.9)]undecanol, 4,4,11,11-tetramethyl- \$S\$ CYCLOLONGIFOLENE OXIDE, DEHYDRO- \$S\$ 2,3b-Methano-3bH-cy



Hit#4 Entry:189283 Library:Wiley9.lib  
SI:75 Formula:C15H24O CAS:92617-51-1 MolWeight:220 RetIndex:0  
CompName:Pentalene, octahydro-1,4-diiodo- \$S\$ 1,4-Diiodooctahydropentalene \$S\$ 1,4-DIIODOOCTAHYDROPENTALENE # \$S\$ 1,4-DIIODOOCTAHYL



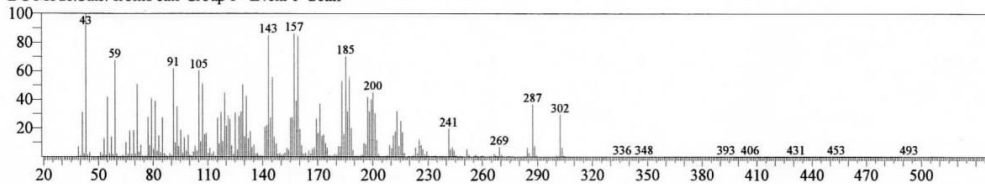
Hit#5 Entry:188833 Library:Wiley9.lib  
SI:75 Formula:C15H24O CAS:98418-98-5 MolWeight:220 RetIndex:0  
CompName:(E)-1,2,4,4-tetramethyl-3-(3'-methyl-1',3'-butadienyl)-2-cyclohexen-1-ol \$S\$ 2-Cyclohexen-1-ol, 1,2,4,4-tetramethyl-3-(3-methyl-1,3-butadienyl)-



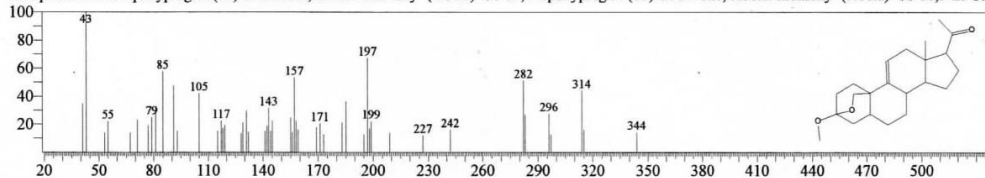
## Hasil Penelitian *Similarity Search* Berdasarkan Database

<<Target >>

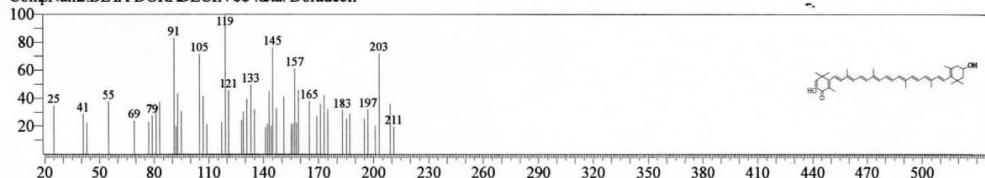
Line#:6 R.Time:12.360(Scar#:1873) MassPeak:360  
RawMode:Averaged 12.355-12.365(1872-1874) BasePeak:43.05(164101)  
BG Mode:Cal. fromPeak Group 1 - Event 1 Scan



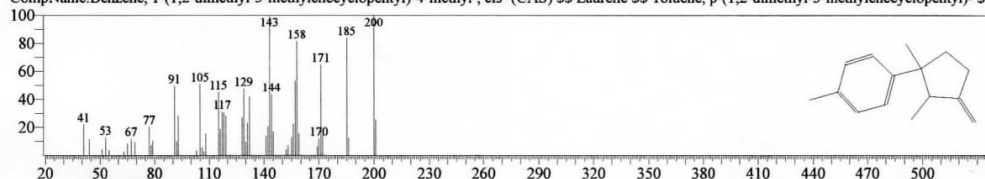
Hit#:1 Entry:462166 Library:Wiley9.lib  
SI:64 Formula:C22H32O3 CAS:53139-20-1 MolWeight:344 RetIndex:0  
CompName:18-3-Epoxypregn-9(11)-en-20-one, 3.beta.-methoxy- (5.beta.)-  $\text{\$}$  18,3-Epoxypregn-9(11)-en-20-one, 3.beta.-methoxy- (5.beta.)-  $\text{\$}$  18,3-EPOX'



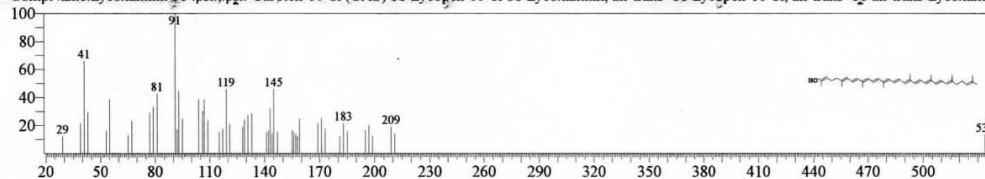
Hit#:2 Entry:640761 Library:Wiley9.lib  
SI:64 Formula:C40H52O3 CAS:31460-54-5 MolWeight:580 RetIndex:0  
CompName:BETA-DORADECIN  $\text{\$}$  .beta.-Doradecin



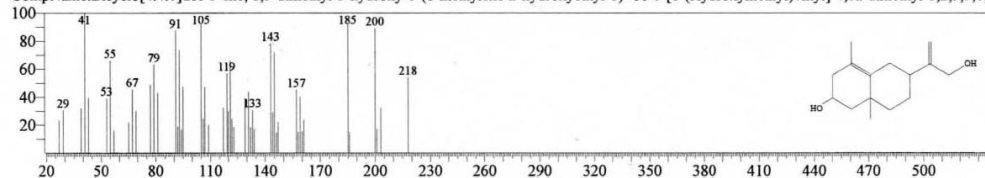
Hit#:3 Entry:143609 Library:Wiley9.lib  
SI:61 Formula:C15H20 CAS:5006-53-1 MolWeight:200 RetIndex:0  
CompName:Benzene, 1-(1,2-dimethyl-3-methylenecyclopentyl)-4-methyl-, cis- (CAS)  $\text{\$}$  Laurene  $\text{\$}$  Toluene, p-(1,2-dimethyl-3-methylenecyclopentyl)-  $\text{\$}$



Hit#:4 Entry:634726 Library:Wiley9.lib  
SI:60 Formula:C40H56O CAS:19891-74-8 MolWeight:552 RetIndex:0  
CompName:Lycoxanthin  $\text{\$}$  .psi.,.psi.-Caroten-16-ol (CAS)  $\text{\$}$  Lycopene-16-ol  $\text{\$}$  Lycoxanthin, all-trans-  $\text{\$}$  Lycopene-16-ol, all-trans-  $\text{\$}$  all-trans-Lycoxanthin



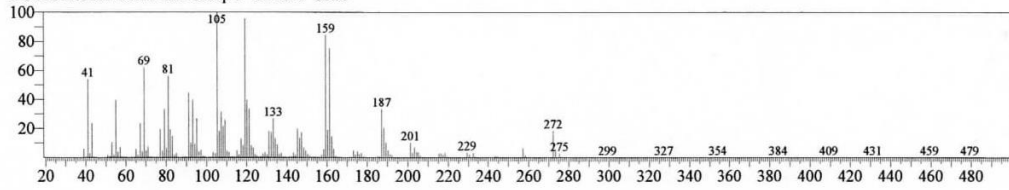
Hit#:5 Entry:226770 Library:Wiley9.lib  
SI:60 Formula:C15H24O2 CAS:0-00-0 MolWeight:236 RetIndex:0  
CompName:Bicyclo[4.4.0]dec-5-ene, 1,5-dimethyl-3-hydroxy-8-(1-methylene-2-hydroxyethyl-1)-  $\text{\$}$  6-[1-(Hydroxymethyl)vinyl]-4,8a-dimethyl-1,2,3,5,6,7,



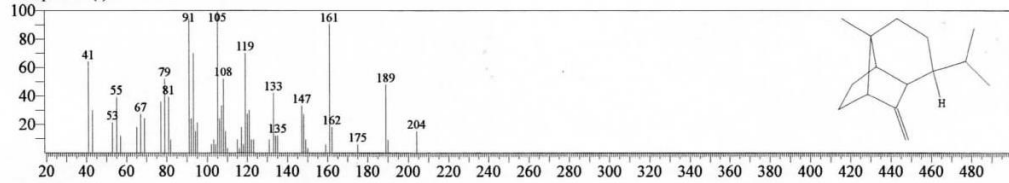
### Hasil Penelusuran *Similarity Search* Berdasarkan Database

<< Target >>

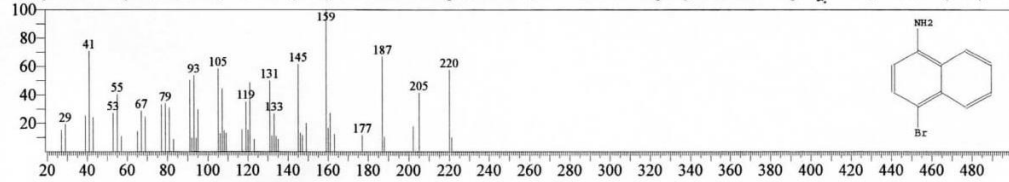
Line# 9 R.Time:12.770(Scar#:1955) MassPeak:325  
RawMode:Averaged 12.765-12.775(1954-1956) BasePeak:105.15(53040)  
BG Mode:Cal. from Peak Group 1 - Event 1 Scan



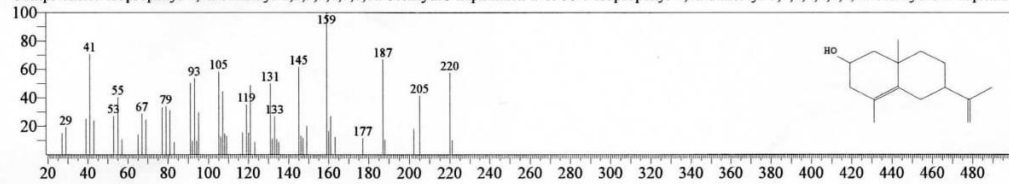
Hit# 1 Entry:152350 Library:Wiley9.lib  
SI:80 Formula:C15H24 CAS:0-00-0 MolWeight:204 RetIndex:0  
CompName:(-)-Simularene



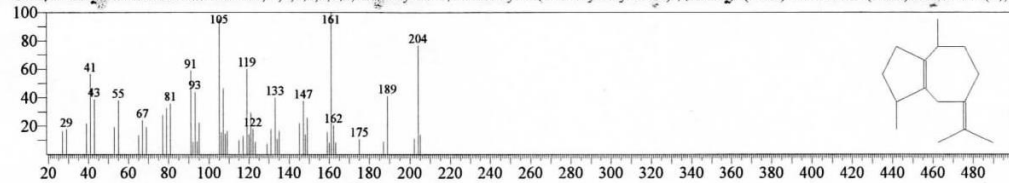
Hit# 2 Entry:189280 Library:Wiley9.lib  
SI:79 Formula:C15H24O CAS:2298-07-9 MolWeight:220 RetIndex:0  
CompName:1-Naphthalenamine, 4-bromo- (CAS) \$\$ 4-Bromo-1-naphthalenamine \$\$ 1-Naphthylamine, 4-bromo- (CAS) \$\$ 1



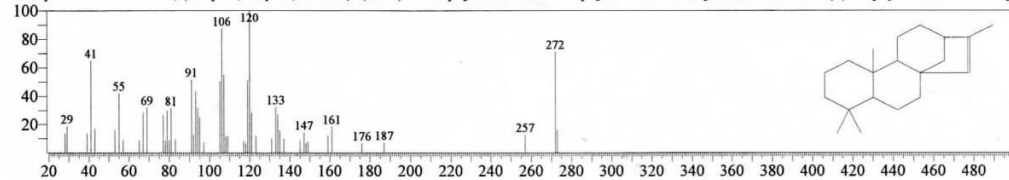
Hit# 3 Entry:188945 Library:Wiley9.lib  
SI:79 Formula:C15H24O CAS:0-00-0 MolWeight:220 RetIndex:0  
CompName:6-Isopropenyl-4,8a-dimethyl-1,2,3,5,6,7,8,8a-octahydro-naphthalen-2-ol \$\$ 6-Isopropenyl-4,8a-dimethyl-1,2,3,5,6,7,8,8a-octahydro-2-naphthal



Hit# 4 Entry:151956 Library:Wiley9.lib  
SI:79 Formula:C15H24 CAS:88-84-6 MolWeight:204 RetIndex:0  
CompName:beta-Guaiane \$\$ Azulene, 1,2,3,4,5,6,7,8-octahydro-1,4-dimethyl-7-(1-methylethylidene)-, (1S-cis)- (CAS) \$\$ Guaiane (CAS) \$\$ Guaia-1(5),7

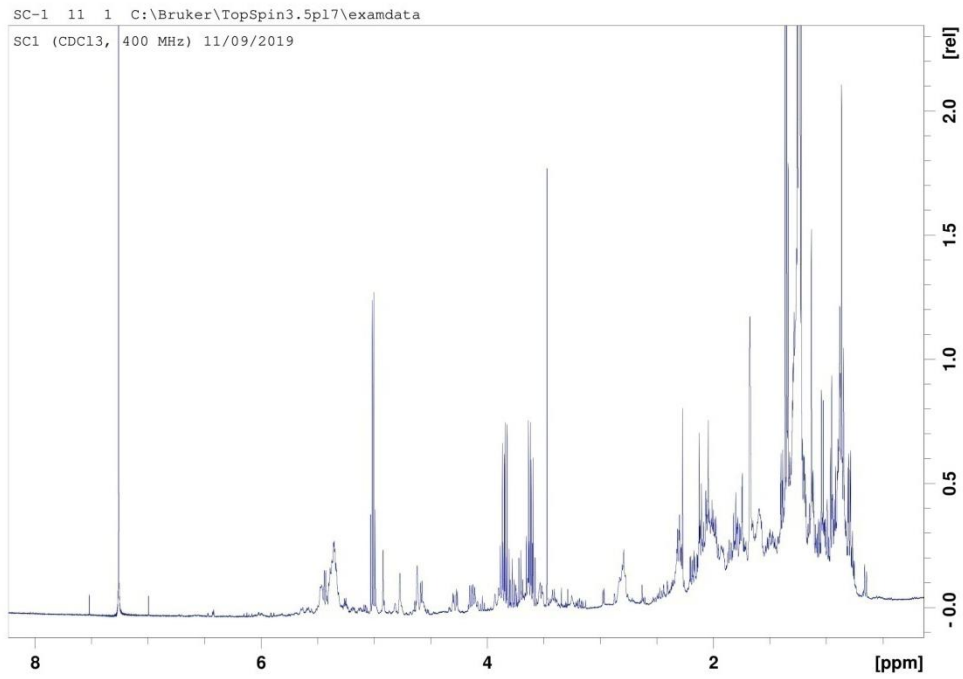


Hit# 5 Entry:312376 Library:Wiley9.lib  
SI:78 Formula:C20H32 CAS:511-85-3 MolWeight:272 RetIndex:0  
CompName:Kaur-15-ene, (5.alpha.,9.alpha.,10.beta.)- (CAS) \$\$ Isophyllocladene \$\$ Isophyllocladen \$\$ Phylloclad-15-ene \$\$ (+)-Isophyllocladene \$\$ Isop



Hasil Penelusuran *Similarity Search* Berdasarkan Database

**Lampiran 3. Profil NMR Ekstrak Pekat Karang Lunak *Lemnalia* sp.**



**Lampiran 4. Dokumentasi Penelitian**



**Proses Ekstraksi Karang Lunak  
*Lemnalia* sp.**



**Proses evaporasi Karang Lunak  
*Lemnalia* sp.**



**Proses elusi Karang Lunak *Lemnalia*  
sp. dengan KLT**



**Hasil Analisis KLT Ekstrak Pekat  
Karang Lunak *Lemnalia* sp.**

