

## DAFTAR PUSTAKA

- Al Amin, F. 2021. Performa Biologis Zat Ekstraktif Kayu Simpur (*Dillenia sp.*) Terhadap Jamur Perusak Kayu. Skripsi Program Studi Kehutanan Fakultas Kehutanan Universitas Hasanuddin. Makassar.
- Asghar, S., Rehman, M.I. Choudahry, and Rahman, 2011, Gas chromatography-mass spectrometry (GC-MS) analysis of petroleum ether extract (oil) and bio-assays of crude extract of *Iris germanica*, International Journal of Genetics and Molecular Biology 3 (7):95-100, <http://www.academicjournals.org/ijgmb>.
- Bajpai, P. (2018). Wood and Fiber Fundamentals. In Biermann's Handbook of Pulp and Paper.
- Beulah, G.G., Soris, P.T., & Mohan, V.R. (2018). GC-MS Determination Of Bioactive Compounds Of *Dendrophthoe falcata* (L.F) Ettingsh: An Epiphytic Plant. International Journal Of Health Sciences dan Research. 8(11): 261-269.
- Darmapatni, K. A. G., A. Basori, dan N. M. Suaniti. 2016. Pengembangan Metode GC-MS Untuk Penetapan Kadar Acetaminophen Pada Spesimen Rambut Manusia. Jurnal Biosains Pascasarjana. 3(18): 62-69.
- Desiwijaya, S. 2020. Analisis komponen zat ekstraktif polar dan nonpolar pada kayu simpur (*Dillenia spp.*). Skripsi. Program Studi Kehutanan Fakultas Kehutanan Universitas Hasanuddin. Makassar.
- Dia, S.P.S., Nurjanah, dan A.M. Jacob. 2015. Komposisi kimia dan aktivitas anti oksidan akar, kulit batang, dan daun lindur. Jurnal Pengolahan Hasil Perikanan Indonesia, 18(2), 205-219.
- Ergina. Nuryanti, S. dan D. I Pursitasari. 2014. Uji Kualitatif Senyawa Metabolit Sekunder Pada Daun Palado (*Agave angustifolia*) Yang Diekstraksi Dengan Pelarut Air Dan Etanol. Skripsi. Universitas Tadulako, Palu.
- Erwin, Pratiwi, D.R., Saputra, I., & Alimuddin. (2021). Antioxidant Assay With Scavenging DPPH Radical Of *Artocarpus anisophyllus* Miq Stem Bark Extracts And Chemical Compositons And Toxisity Evaluation For TheMost Active Fraction. Research J Pharm And Tech. 14(5): 1-5.
- Ferdy, R., Fadilah, H.U., Lolyta, S. 2017. Pemanfaatan Tumbuhan Simpurn Obat oleh Masyarakat Desa Ara di Kecamatan Menyuke Kabupaten Landak. Jurnal Hutan Lestari. 5(2) : 452-459.

- Gandhi D. dan Mehta P. 2013. *Dillenia indica* Linn. and *Dillenia pentagyna* Roxb. Pharmacognostic, Phytochemical and Therapeutic aspect. Journal of Applied Pharmaceutical Science Vol.3 (11).
- Hasibuan, V.M., Hafrizal, R., Inarah, F., Yoga, P., Nasrullah. 2016. Pengaruh Pemberian Ekstrak Daun Simpup (*Dillenia indica*) Terhadap Indeks Organ Limpa, Paru- Paru dan Ginjal pada Tikus Putih. Jurnal Farmasi. 1(2) : 1-9.
- Huang, L., Zhu, X., Zhou, S., Cheng, Z., Shi, K., Zhang, C., & Shao, H. (2021). Phthalic Acid Esters: Natural Sources And Biological Activities. Toxins. 13(7): 1-17.
- Kardinan, A. 2002. Pestisida Botani. Ramuan dan Cara Aplikasi. Penebar Swadaya. Jakarta.
- Kumar, S., Singh, S.P. Mishra. I.M. dan Adhikari. D.K. 2009. Recent advances in production of bioethanol from lignocellulosic biomass. Chem Eng Technol. 32(4) : 517-526.
- Kusmayra Ambarwati, Miftahul Jannah, Asyifa Robiatul Adawiyah. 2020. Kandungan Hexadecanoic Acid, Ethyl Ester pada Nigela Sativa untuk Prediksi Apoptosis pada Sel HeLa. Fakultas Ilmu Kesehatan Prodi Sarjana Terapan Kebidanan. Pasca Sarjana Ilmu Kesehatan Masyarakat Universitas Universitas Respati Indonesia.
- Leksono, W.B., R. Pramesti, G.W. Santosa, dan W.A. Setyati. 2018. Jenis Pelarut Metanol dan n-Heksan terhadap Aktifitas Antioksidan Ekstrak Rumpuk Laut (*Gelidium sp.*) dari Pantai Drini Gunungkidul-Yogyakarta. Jurnal Kelautan Tropis, 21(1), 9-16.
- Lukmandaru, G. 2009. Pengukuran kadar ekstraktif dan sifat warna pada kayu teras pada jati doreng (*Tectona grandis*). Jurnal Ilmu Kehutanan, 3 (2), 6773.
- Martawijaya, A., I Kartasajuna, Y.I. Mandang, S.A Prawira, S.A., dan K. Kadir. 2005. Atlas kayu Indonesia, Jilid II. Departemen Kehutanan Balai Penelitian dan Pengembangan Kehutanan. Bogor.
- Marnoto, Tjukup., Gogot Haryono., Dewi Gustinah., dan Fendy Artha Putra. 2012. Ekstraksi Tannin Sebagai Bahan Pewarna Alami Dari Tanaman Putrimalu (*Mimosa Pudica*) Menggunakan Pelarut Organik. Jurnal Teknologi Industri. 14 (1) : 39-45.

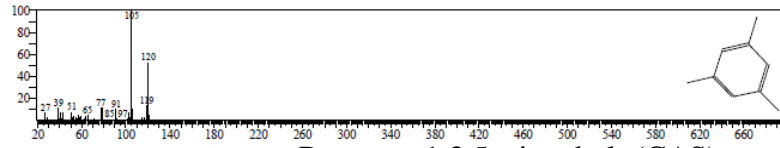
- Maududi, A.A. 2009. Produksi antioksidan dari daun simpur (*Dillenia indica*) menggunakan metode ekstraksi tekanan tinggi dengan sirkulasi pelarut. Skripsi. Fakultas Teknik Universitas Indonesia Program Studi Teknik Kimia. Depok.
- Naufal, A., Endang, K., Budi, R. 2017. Identifikasi Jenis Pigmen Dan Uji Potensi Antioksidan Ekstrak Pigmen Bakteri *Serratia marcescens* Hasil Isolasi Dari Sedimen Sumber Air Panas Gedong Songo. *Jurnal Bioma*. 19(2) : 95-103.
- Nawawi, D.S., S.H. Wicaksono, dan I.S. Rahayu. 2013. Kadar zat ekstraktif dan susut kayu nangka (*Artocarpus heterophyllus*) dan mangium (*Acacia mangium*). *Jurnal Ilmu dan Teknologi Kayu Tropis*, 11(1), 46-54.
- Nomer, N.M.G.R., Agus, S.D., Komang, A.N. 2019. Kandungan Senyawa Flavonoid dan Antosianin Ekstrak Kayu Secang serta Aktivitas Antibakteri terhadap *Vibrio cholerae*. *Jurnal Ilmu dan Teknologi Pangan*. 8(2) : 216-225.
- Noviyanti, L. 2010. Modifikasi Teknik Kromatografi Kolom untuk Pemisahan Trigliserida dari Ekstrak Buah Merah (*Pandanus conoideus Lamk.*). Skripsi. Universitas Sebelas Maret. Surakarta.
- Nurchayanti, A.D.R., Lusiawati, D., K. H Simotius. 2011. Aktivitas Anti Oksidan dan Anti Bakteri Ekstrak Polar dan Non Polar Biji Selasi (*Ocimum sanctum linn*). *Jurnal Teknologi dan Industri Pangan*. 8(1).
- Obenu NM. Ekstraksi dan Identifikasi Komposisi Metabolit Fraksi Diklorometana dan Aquades Ekstrak Metanol Daun Sirsak (*Annona muricata Linn*). *Journal Saintek Lahan Kering*. 2019;2(1):17-19.
- Okakinanti, E.A. 2014. Etnobotani Tumbuhan Obat di Menyuke dan Implementasinya dalam Pembuatan Buklet Manfaat Keanekaragaman Hayati. Skripsi. Fakultas Keguruan dan Ilmu Pendidikan. Universitas Tanjungpura : Pontianak.
- Padmini, E.A., Valarmathi, A., and Rani, M.U. 2010. Comparative Analysis of Chemical Composition and Antibacterial Activities of *spicata* and *Camellia sinensis*. *Asian J. Exp. Biol. Sci*, 1: 772-781 Pattiya, A. (2018). Fast pyrolysis. In *Direct Thermochemical Liquefaction for Energy Applications*. Elsevier Ltd.
- Pradhan, D., D. K. Suri., P. Biswasroy. 2013. Golden Heart Of The Nature: Piper Betle L. *Journal*. Vol. 1, pp. 147167.

- Pratiwi, A. dan Taslim, E. 2013. Uji Kemurnian Dua Senyawa dari Ekstrak Metanol Kayu Batang *Garcinia cylindrocarpa*. Jurnal Sains dan Seni Pomits. Institut Teknologi Sepuluh November. Surabaya. 2(2) : 23373520.
- Ramya, B., Malarvili, T., & Velavan, S. (2015). GC-MS Analysis Of Bioactive Compounds In *Bryonopsis laciniosa* Fruit Extract. International Journal Of Pharmaceutical Sciences And Research. 6(8): 3375-3379.
- Rika, Y. & Ivon, S.W. 2015. Senyawa Antioksidan Ekstrak Metanol *Glycine max* (L.) Merr Varietas Detam 1 Hasil Estraksi Ultrasonik. Jurnal Sains Farmasi & Klinis, Vol. 02 (01) pp 66-7
- Rosyida, A. dan Anik, Z. 2013. Pewarnaan Bahan Tekstil dengan Menggunakan Ekstrak Kayu Nangka dan Teknik Pewarnaannya untuk Mendapatkan Hasil Optimal. Jurnal Rekayasa Proses. 7(2) : 52-58.
- Sapri. 2011. Uji Aktivitas Antioksidan Ekstrak Kayu Bayur Sulawesi (*Pterospermum celebicum* Miq) dengan Metode Penangkapan Radikal Bebas DPPH. Jurnal Tropical Pharm Chem. Akademi Farmasi Samarinda. 1(3) : 227-234.
- Sen, S., R. Chakraborty, C. Sridhar, Y.S.R. Reddy, & B. De. 2010. Free Radicals, Antioxidants, Diseases, and Phytomedicines: Current Status and Future Prospect. *International Journal of Pharmaceutical Sciences Review and Research*. Vol. 3(1): 91-100.
- Setyati, W.A., M. Zainuddin, dan R. Pramesti. 2017. Aktifitas Antioksidan Senyawa Non-Polar dan Polar Dari Ekstrak Makroalga (*Acanthophora muscoides*) Dari Pantai Krakal Yogyakarta. Jurnal Enggano, 2(1), 68-77.
- Sjostrom, E. 1995. Kimia kayu, dasar-dasar dan penggunaan. Terjemahan: H. Sastrohamidjojo dan S. Prawirohatmodjo. Gadjah Mada University Press. Yogyakarta.
- Supartini. 2009. Komponen Kimia Kayu Meranti Kuning (*Shorea macrobalanos*). Jurnal Penelitian Dipterokarpa. 3(1) : 43-50.
- Suprpti, S. dan Djarwanto. 2012. Ketahanan enam jenis kayu terhadap jamur pelapuk. Jurnal Penelitian Hasil Hutan, 30(3), 227-234.
- Supriadi, A. 2019. Kualitas Pemesinan Kayu Punak (*Tetramerista glabra* Miq.) Menurut Ke dalam Batang (Machining Quality of Punak (*Tetramerista glabra* Miq.) Wood Based on Steam Depth). Jurnal Ilmu Pertanian Indonesia. 24(1) :12-19.

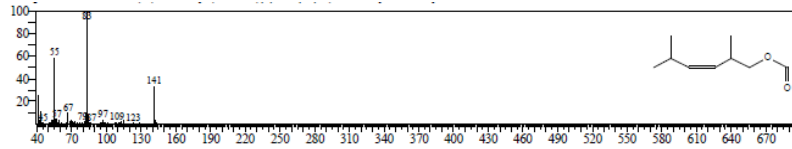
- Syafii, W., R.K. Sari, dan S Maemunah. 2014. Uji bioaktivitas zat ekstraktif pohon mindi (*Melia azedarach Linn*) dengan metode brine shrimp lethality test. *Jurnal Ilmu dan Teknologi Kayu Tropis*, 12(1), 48-55.
- Syahrana, N.A., Akrom., Endang, D. 2017. Efek Serbuk Bunga Rosella Merah terhadap Ekspresi II-10 pada sukarelawan sehat. *Jurnal Farmasi dan Ilmu Kefarmasian Indonesia*. 4 (1) : 1-4.
- Syofuna, A., A.Y. Banana<sup>1</sup>, G. Nakabonge. 2012. Efficiency of natural wood extractives as wood preservatives against termite attack. *Maderes, Ciencia Y. Tecnologia*, 14(2), 155-163.
- Tonapa, A. S. 2014. Kelarutan Zat Ekstraktif Kayu Kerai Payung (*Filicium decipiens*) berdasarkan Letak pada Cabang dengan menggunakan Metode Air Panas dan Air Dingin. *Politeknik Pertanian Negeri Samarinda : Samarinda*.
- Uma M, Jothinayaki S, Kumaravel S, Kalaiselvi P. 2011. Determination of bioactive components of *Plectranthus amboinicus Lour* by GC-MS Analysis. *New York Science J*. <http://www.sciencepub.net/newyork>.
- Verdiana, M., I.W.R. Widarta, dan I.D.G.M. Purmana. 2018. Pengaruh jenis pelarut pada ekstraksi menggunakan gelembung ultrasonik terhadap aktifitas antioksidan ekstrak kulit buah lemon (*Citrus limon (Linn) Burm F.*). *Jurnal Ilmu dan Teknologi Pangan*, 7(4), 213-222.
- Wahyudi, I., Priadi, T., Rahayu, I. S. 2014. Karakteristik dan Sifat-Sifat Dasar Kayu Jati Unggul Umur 4 dan 5 Tahun Asal Jawa Barat. *Jurnal Ilmu Pertanian Indonesia*. 19(1): 50-56.
- Wibisono, H.S., Jasni., Wa Ode, M.A. 2018. Komposisi Kimia dan Keawetan Alami Delapan Jenis Kayu di Bawah Naungan. *Jurnal Penelitian Hasil Hutan*. 36(1) : 59-65.
- Yanti, H. 2008. Sifat Anti Rayap Zat Ekstraktif Kulit Kayu *Acacia auriculiformis A.Cunn.ex Benth*. Tesis. Sekolah Pascasarjana Institut Pertanian, Bogor.
- Zabel, R.A. and J.J. Morrell. 1992. *Wood microbiology, decay and its prevention*. Academic Press. California. USA.

# LAMPIRAN

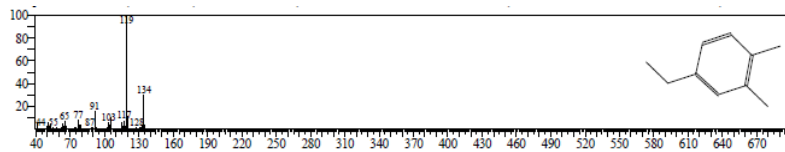
Lampiran 1. Gambar spektrum massa ekstrak aseton kayu simpur



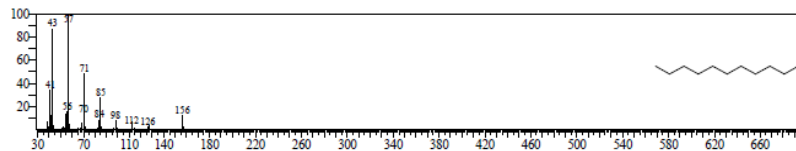
Gambar 11. Benzene, 1,3,5-trimethyl- (CAS)



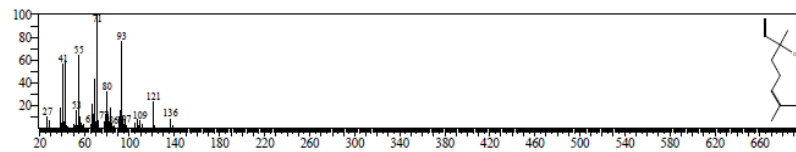
Gambar 12. 3-Hexen-1-ol, 2,5-dimethyl-, formate,(Z)



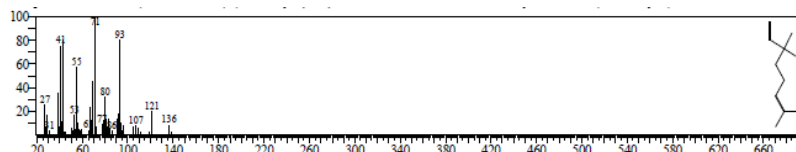
Gambar 13. Benzene, 4-Ethyl-1,2-Dimethyl



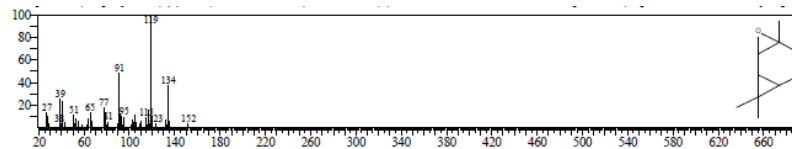
Gambar 14. Undecane



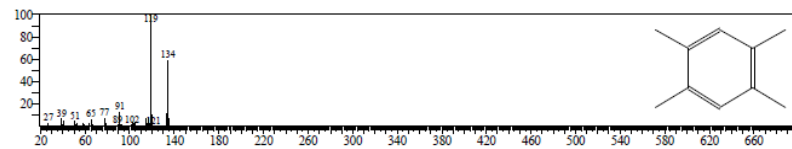
Gambar 15. Linalool



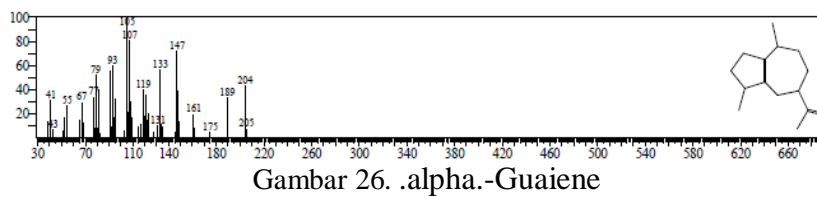
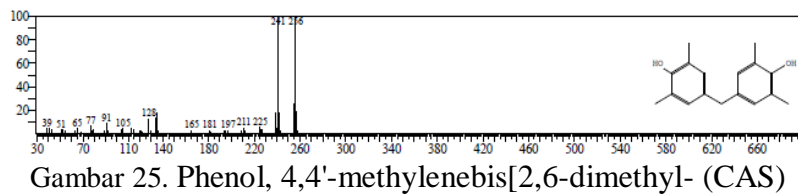
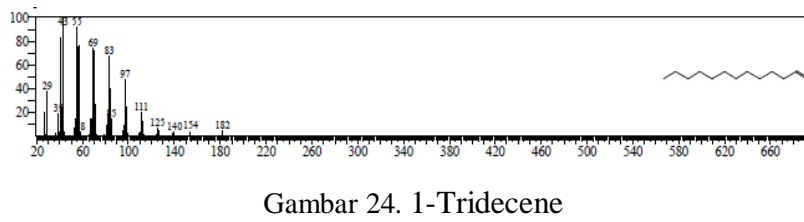
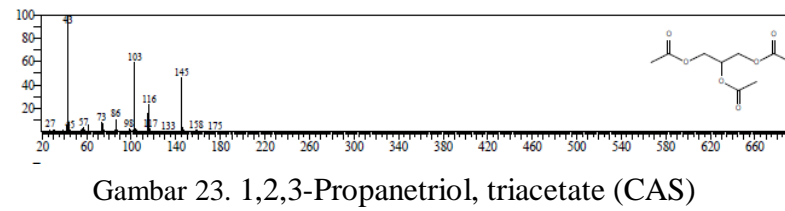
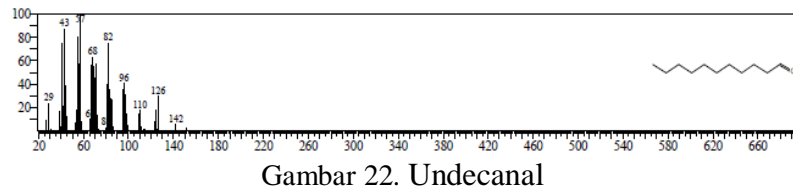
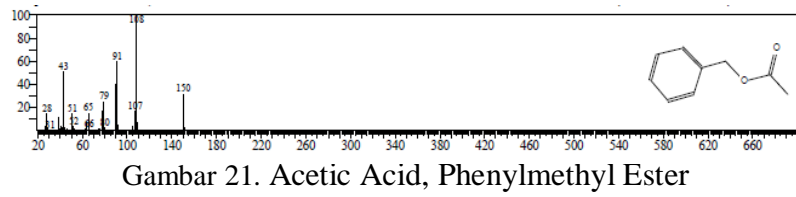
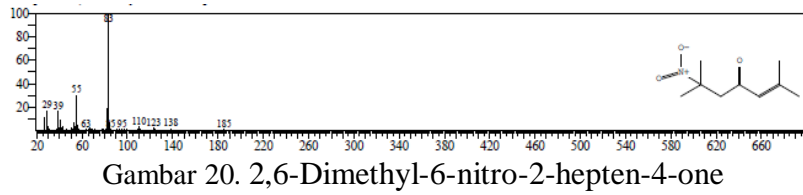
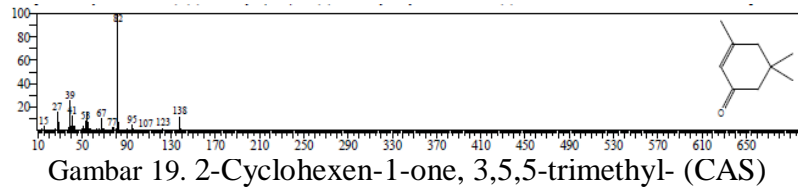
Gambar 16. Linalool



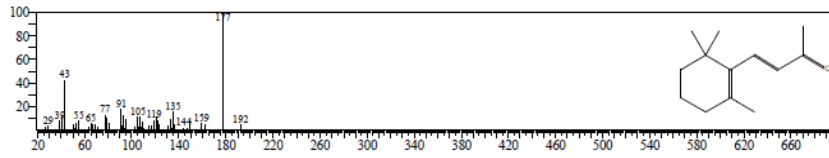
Gambar 17. 2,3-Epoxy-carane, (E)



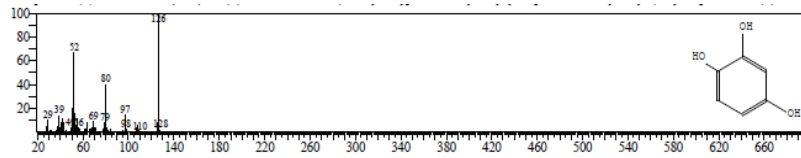
Gambar 18. Benzene, 1,2,4,5-tetramethyl- (CAS)



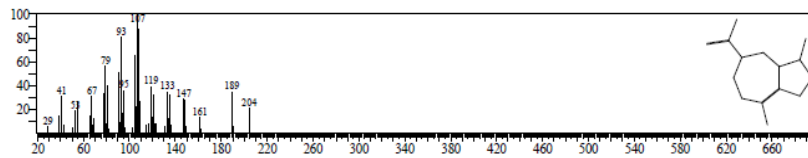




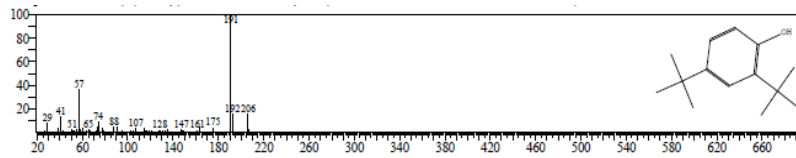
Gambar 27. trans-.beta.-Ionone



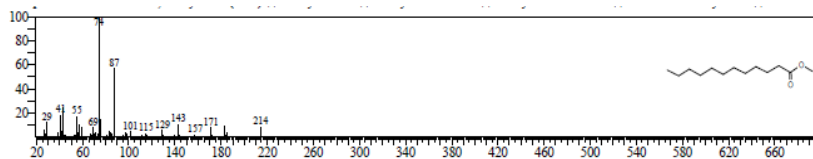
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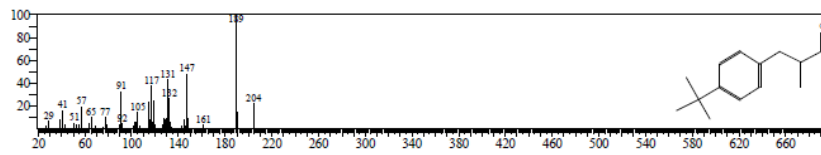
Gambar 29. Azulene, 1,2,3,5,6,7,8,8a-octahydro-1,4-dimethyl-7-(1-methylethenyl)-, [1S-(1.alpha.,7.alpha.,8a.beta.)]



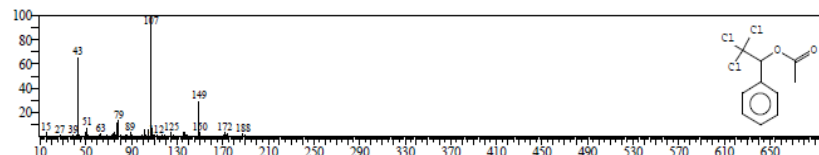
Gambar 30. Phenol, 2,4-Bis(1,1-Dimethylethyl)



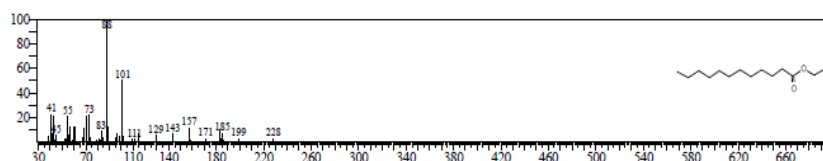
Gambar 31. Dodecanoic acid, methyl ester (CAS)



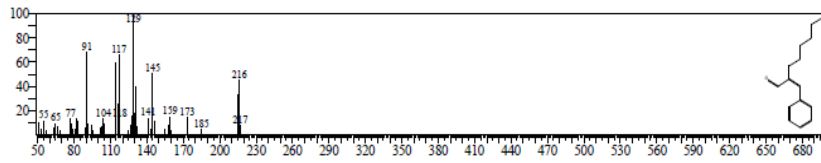
Gambar 32. Lilial



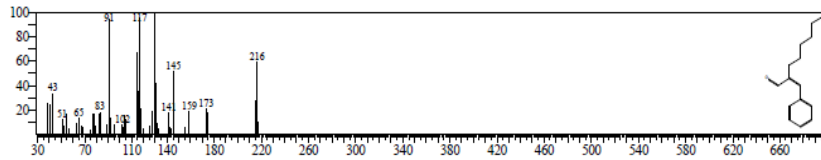
Gambar 33. Benzenemethanol, .alpha.-(trichloromethyl)-, acetate



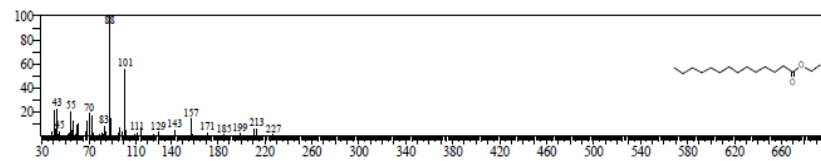
Gambar 34. Dodecanoic acid, ethyl ester (CAS)



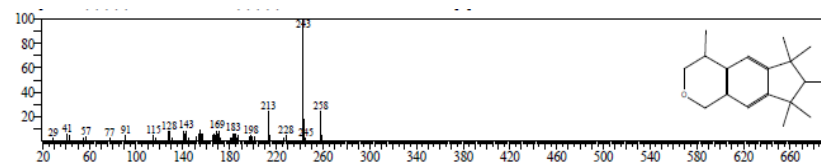
Gambar 35. .Alpha.-Hexyl-Cinnamaldehyde



Gambar 36. Octanal, 2-(Phenylmethylene)

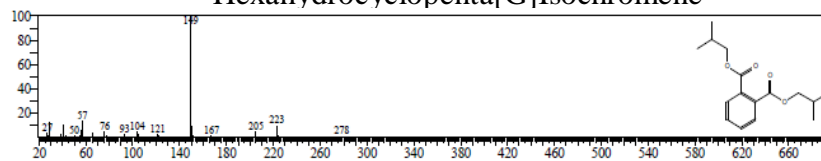


Gambar 37. Tetradecanoic Acid, Ethyl Ester

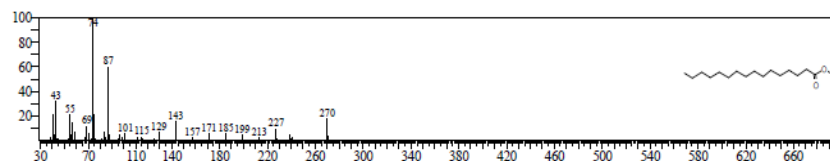


Gambar 38. 4,6,6,7,8,8-Hexamethyl-1,3,4,6,7,8-

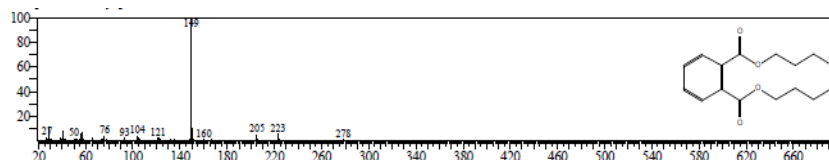
Hexahydrocyclopenta[G]isochromene



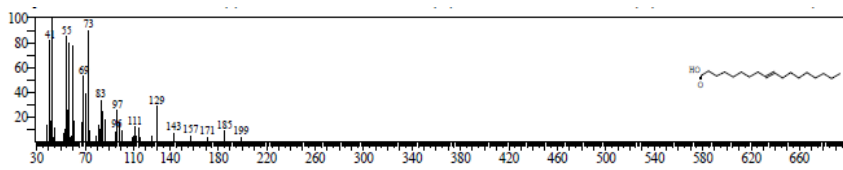
Gambar 39. 1,2-Benzenedicarboxylic acid, bis(2-methylpropyl) ester



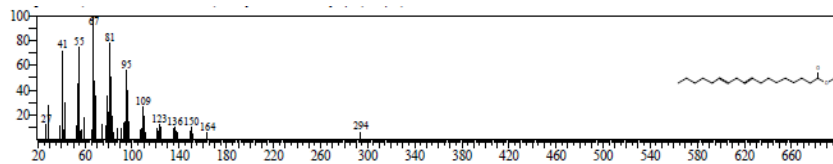
Gambar 40. Hexadecanoic Acid, Methyl Ester



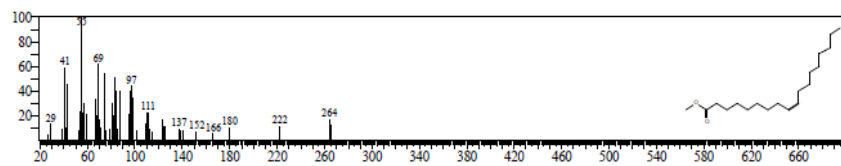
Gamabr 41. Dibutyl phthalate



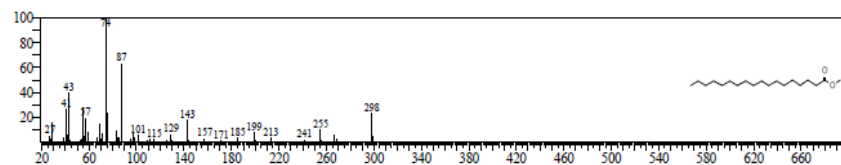
Gambar 42. 9-Octadecenoic Acid (Z)



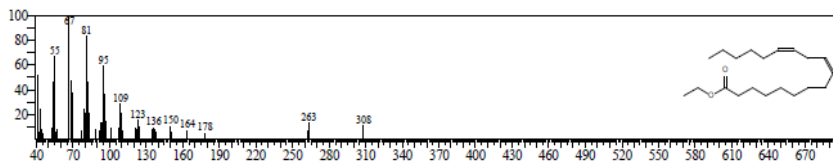
Gambar 43. 9,12-Octadecadienoic acid, methyl ester



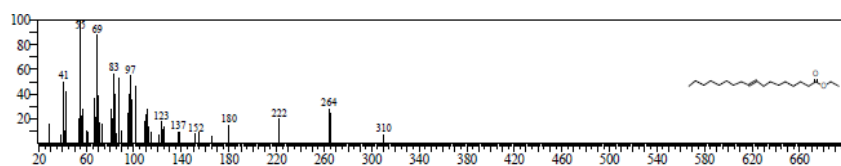
Gambar 44. 9-Octadecenoic acid (Z)-, methyl ester



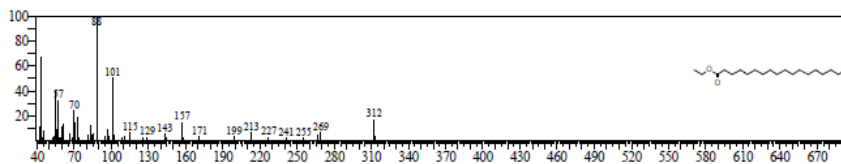
Gambar 45. Methyl stearate



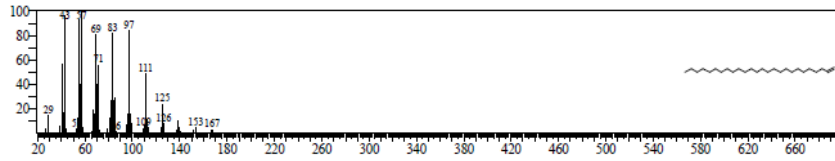
Gambar 46. Linoleic acid ethyl ester



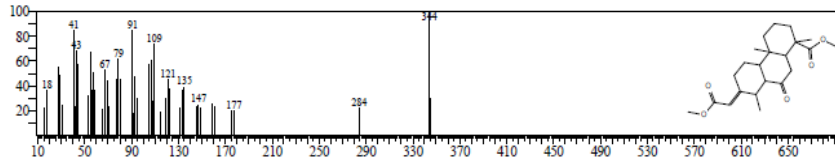
Gambar 47. (E)-9-Octadecenoic acid ethyl ester



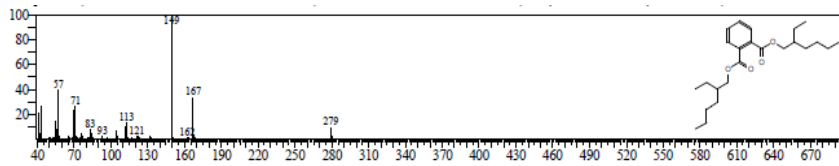
Gambar 48. Octadecanoic acid, ethyl ester



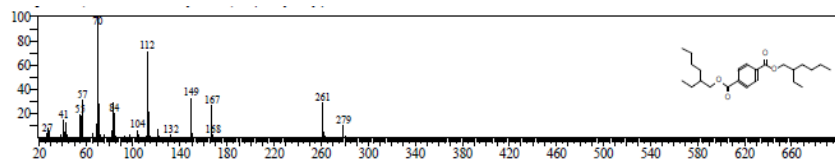
Gambar 49. 1-Hexacosene



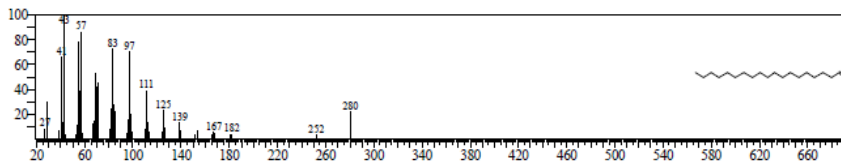
Gambar 50. Cassamic Acid Methyl Ester



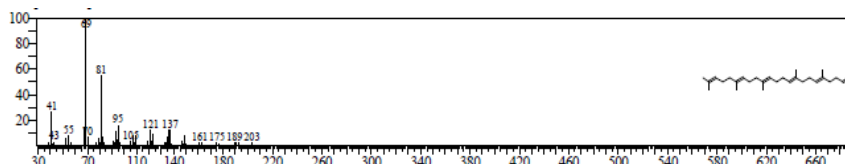
Gambar 51. 1,2-Benzenedicarboxylic Acid



Gambar 52. 1,4-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester

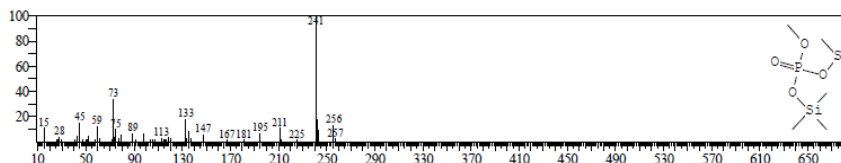


Gambar 53. 1-Eicosene

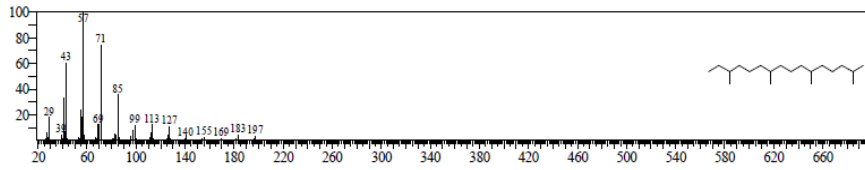


Gambar 54. Squalene

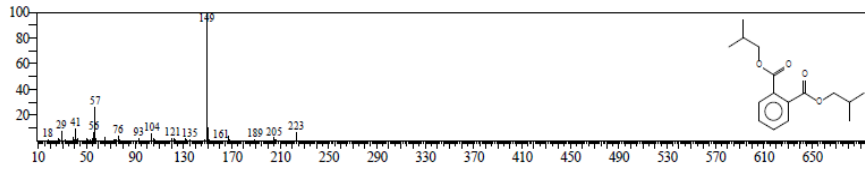
**Lampiran 2. Gambar spektrum massa ekstrak metanol kayu simpur**



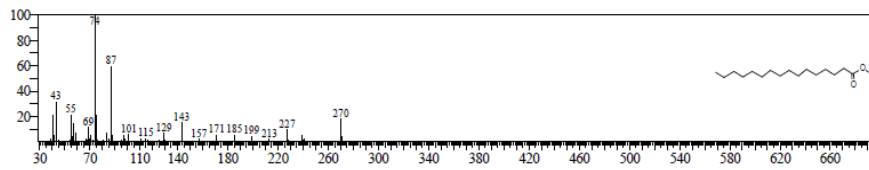
Gambar 55. Phosphoric acid, bis(trimethylsilyl)monomethyl ester



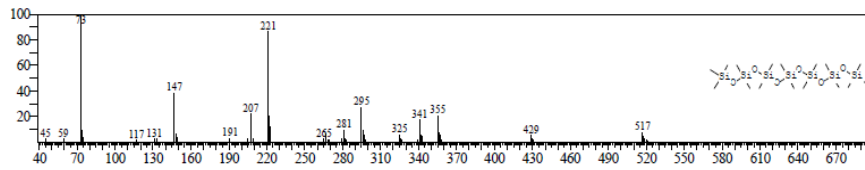
Gambar 56. Hexadecane, 2,6,10,14-tetramethyl



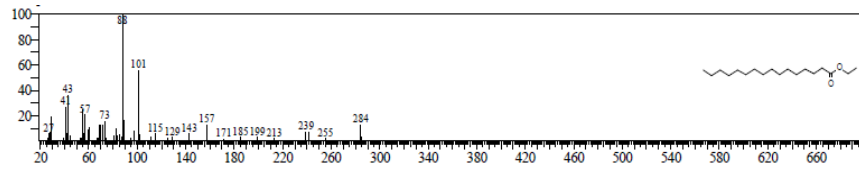
Gambar 57. 1,2-Benzenedicarboxylic acid, bis(2-methylpropyl) ester



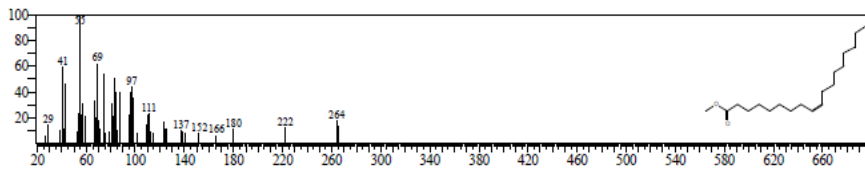
Gambar 58. Hexadecanoic Acid, Methyl Ester



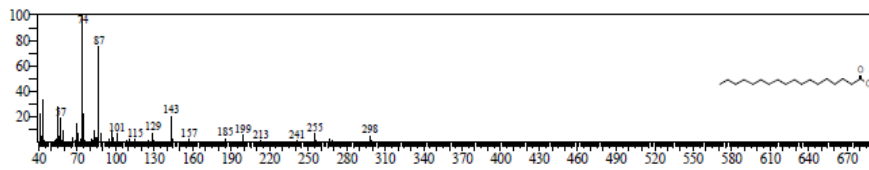
Gambar 59. Heptasiloxane, Hexadecamethyl



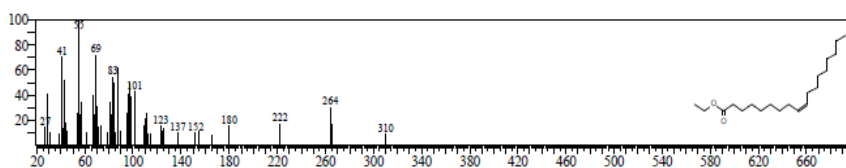
Gambar 60. Hexadecanoic Acid, Ethyl Ester



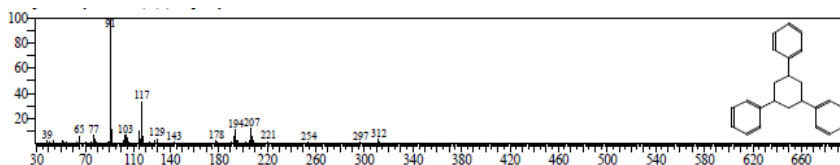
Gambar 61. 9-Octadecenoic acid (Z)-, methyl ester



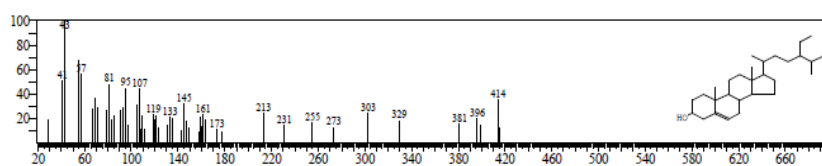
Gambar 62. Methyl stearate



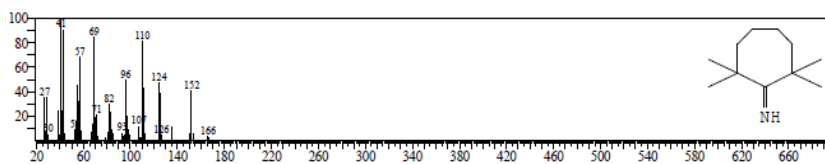
Gambar 63. Ethyl Oleate



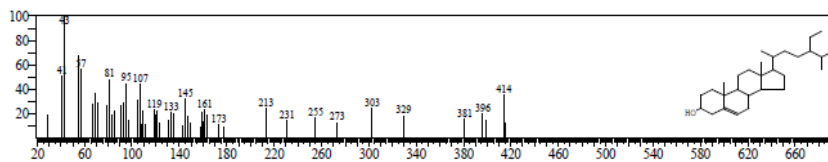
Gambar 64. Cyclohexane, 1,3,5-triphenyl



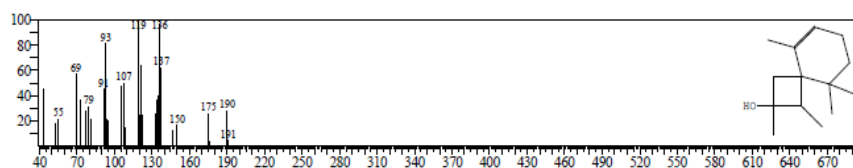
Gambar 65. Stigmast-5-En-3-Ol, (3.Beta.,24s)



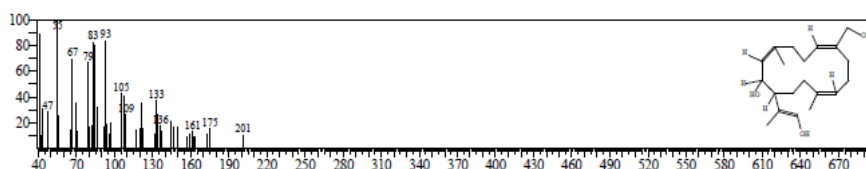
Gambar 66. Cycloheptanone imine, 2,2,7,7-tetramethyl



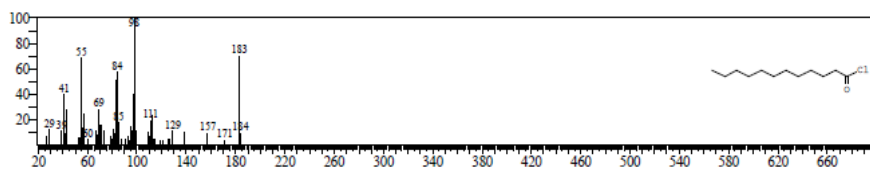
Gambar 67. Stigmast-5-En-3-Ol, (3.Beta.,24s)



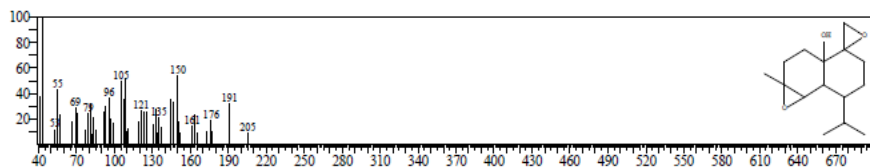
Gambar 68. 1,2,5,9,9-Pentamethyl-Spiro(3.5)Non-5-En-2-Ol



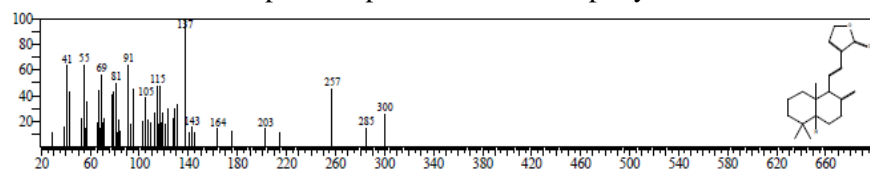
Gambar 69. (1S,2R,3E,7E,11E)-2,16,19-Trihydroxycembra-3,7,11,15-tetraene



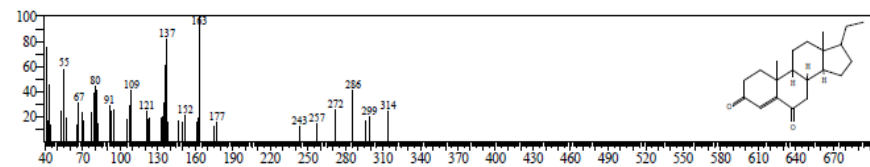
Gambar 70. Dodecanoyl chloride (CAS)



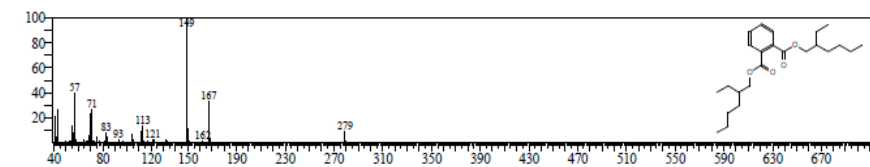
Gambar 71. 3.alpha.,4.alpha.,9.beta.,11-Diepoxywurolan-10-ol



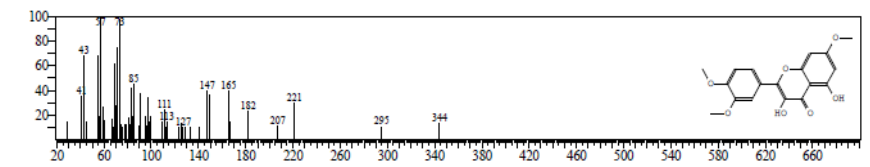
Gambar 72. Villosin



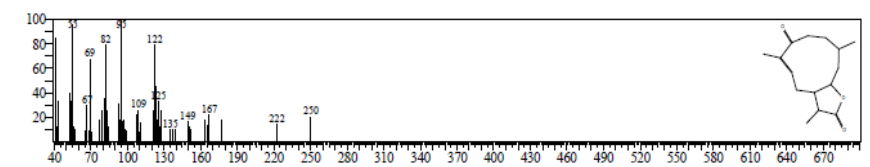
Gambar 73. Pregn-4-ene-3,6-dione



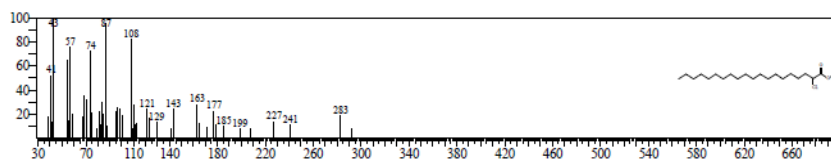
Gambar 74. 1,2-Benzenedicarboxylic Acid



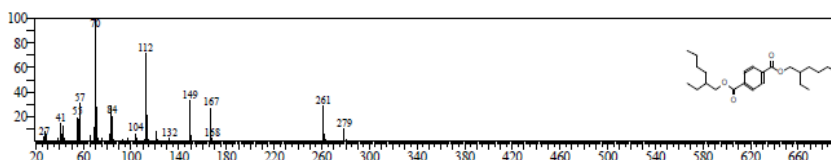
Gambar 75. Quercetin 7,3',4'-Trimethoxy



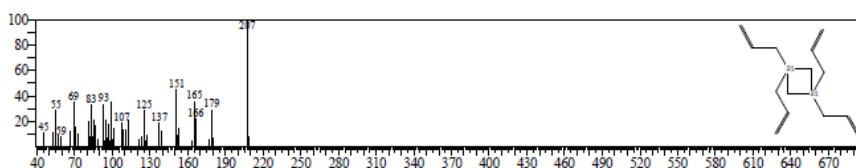
Gambar 76. 4.xi.-Germacr-9-en-12-oic acid, 6.alpha.-hydroxy-1-oxo-, .gamma.-lactone, (11S)- (CAS)



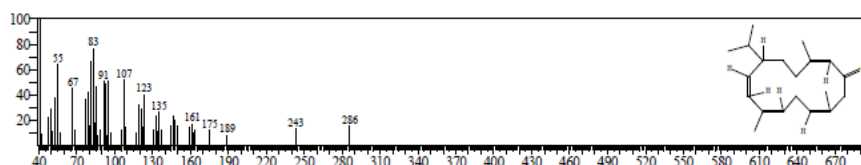
Gambar 77. Methyl 2-chloro-eicosanoate



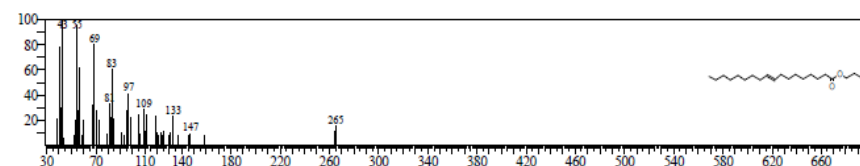
Gambar 78. 1,4-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester



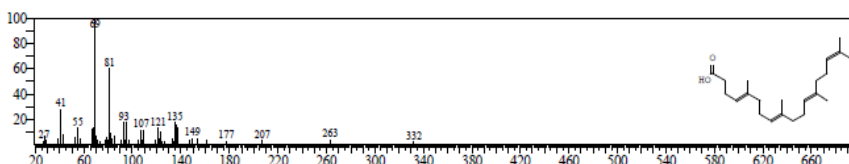
Gambar 79. 1,1,3,3-Tetraallyl-1,3-disilacyclobutane



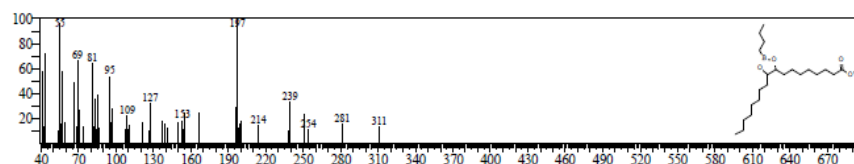
Gambar 80. (1S,2E,4E,7E,11E)-10-Oxocembra-2,4,7,11-tetraene



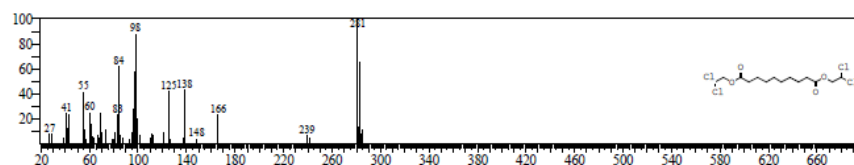
Gambar 81. Oleic Acid, Propyl Ester



Gambar 82. 5,9,13,17-Tetramethyl 4,8,12,16-octadecatetraenoic acid

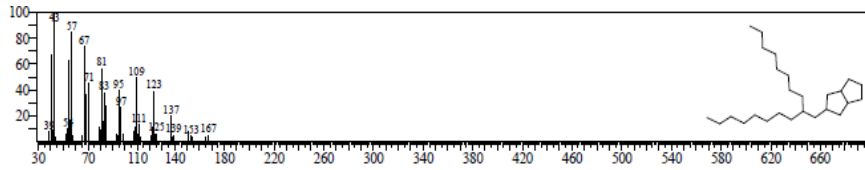


Gambar 83. N-Butylboronate Of Methyl 9,10-Dihydroxy-Stearate

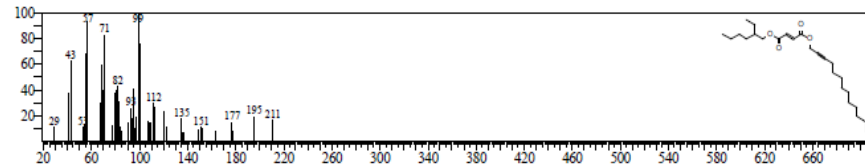


Gambar 84. Sebacic acid, di(2,2-dichloroethyl) ester

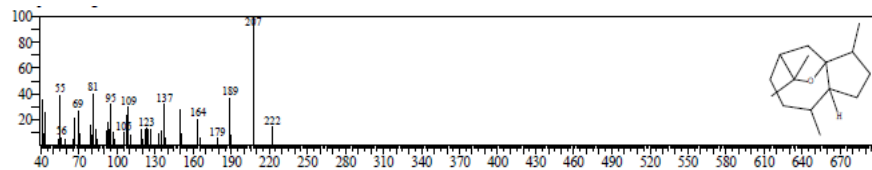




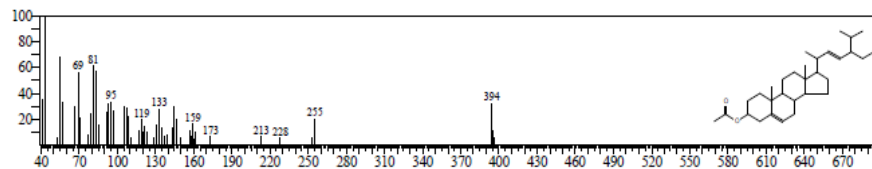
Gambar 85. Pentalene, octahydro-1-(2-octyldecyl)- (CAS)



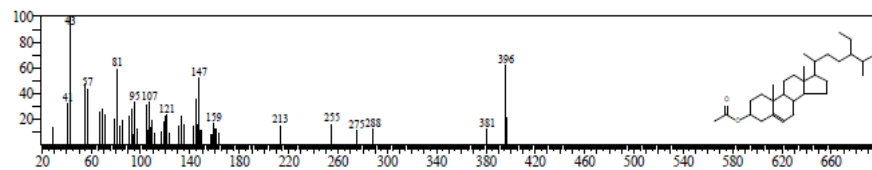
Gambar 86. Fumaric acid, 2-ethylhexyl tridec-2-yn-1-yl ester



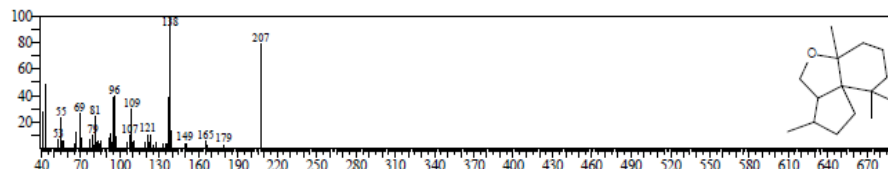
Gambar 87. Liguloxide



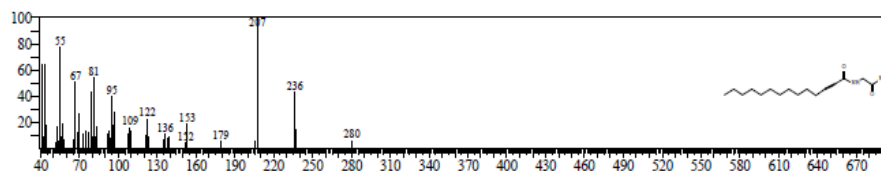
Gambar 88. Stigmasta-5,22-dien-3-ol, acetate, (3.beta.)



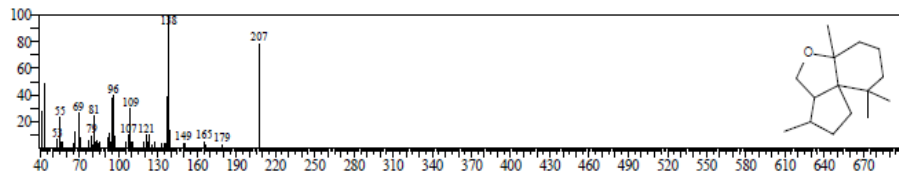
Gambar 89. .beta.-Sitosterol acetate



Gambar 90. 1,5,9,9-Tetramethyl-2-oxatricyclo[6.4.0.0(4,8)]dodecane



Gambar 91. 2-Myristinoyl-glycinamide



Gambar 92. 1,5,9,9-Tetramethyl-2-oxatricyclo[6.4.0.0(4,8)]dodecane



Lampiran 3. Ekstrak Aseton dan Ekstrak Metanol Kayu Simpur