

## Gas Chromatography-Mass Spectrometry (GC-MS) Determination of Bioactive Components from *Corallocarpus epigaeus* L Rhizome.

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Received: 10<sup>th</sup> January 2023

Accepted: 19<sup>th</sup> March 2023

Published: 20<sup>th</sup> October 2023

### Abstract

*Corallocarpus epigaeus* L. plant belongs to the family *Cucurbitaceae* is widely distributed in tropical Africa, Persian Gulf region and India (Andhra Pradesh, Assam, Bihar, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal). Ethno medical information suggests that the roots are used as Laxative and antihelminthic. Syphilitic rheumatism, Venereal complaints, and later stages of dysentery. Yet no further characteristic study has been conducted from alcoholic extract of this species, therefore in this present study we seek to identify and evaluate the bioactive compounds from the ethanolic extracts of *Corallocarpus epigaeus* L (root) by using the GCMS. Result of this research work reports twenty-six compounds. The identified bioactive components and correlated with the NIST Mass Spectrum Library. In conclusion, we seek to provide additional information and pharmacological information associated with this rhizome.

### Keywords

*Corallocarpus epigaeus* L, GC-MS, Traditional uses, Indolizine, Nonadecanoic acid

### Introduction

*Corallocarpus Epigaeus* L. belongs to the family *Cucurbitaceae* is commonly known as Akasgaddah in Hindi and Akashagaruda in Tamil, and is distributed in tropical and temperate regions of India, Ceylon, Deccan, and South Maratha country.<sup>[1]</sup> In folk medicine this rhizome is especially used for the treatment of various ailments, including, lateral stage of dysentery, enteritis, laxative, rheumatism, syphilis and venereal complaints. It is used as a remedy for snake bites.<sup>[2,1]</sup> In this current research work, we attempt to compile and document information from the alcoholic extract of the whole plant, using GC / MS to evaluate and identify bioactive compounds to demonstrate the biological properties required for the research purpose.

## Materials and Methods

### Raw materials

Dried rhizomes of *Corallocarpus epigaeus* L. were collected from Kancheepuram district, Tamil Nadu, India. The plant materials were authenticated based on organoleptic, macroscopic examination and certified (Authenticated No. PARC/2021/4532) by Professor P.Jayaraman, Director, IHB, Plant Anatomy Research Centre, Tambaram, Chennai-45, India.

### Formation of Ethanolic extract:

Extracts were prepared as described by the standard method.<sup>[3]</sup> Initially, the collected rhizomes were chopped into tiny bits and allowed to dry for a few days in a sunshade so that the muddy portions were removed. Then the dried materials were roughly grinded by using a mixture. 50g of powdered material was soaked with 300ml of ethanol for 72 hours with intermediate shaking in a beaker. The filter was filtered through paper and extracted with the Soxhlet apparatus. The last traces of solvent were removed by transferring them into a china dish and then allowed to heat through a sand bath at normal temperature carefully in order to prevent charring or denature of the compound due to overheating.<sup>[4,5]</sup> The yield of ethanolic extracts (1.5mg) was noted for future reference. The dried crude extract was stored in sterile amber-colored bottles or vials and stored in the refrigerator until used for this work.

### GC-MS:

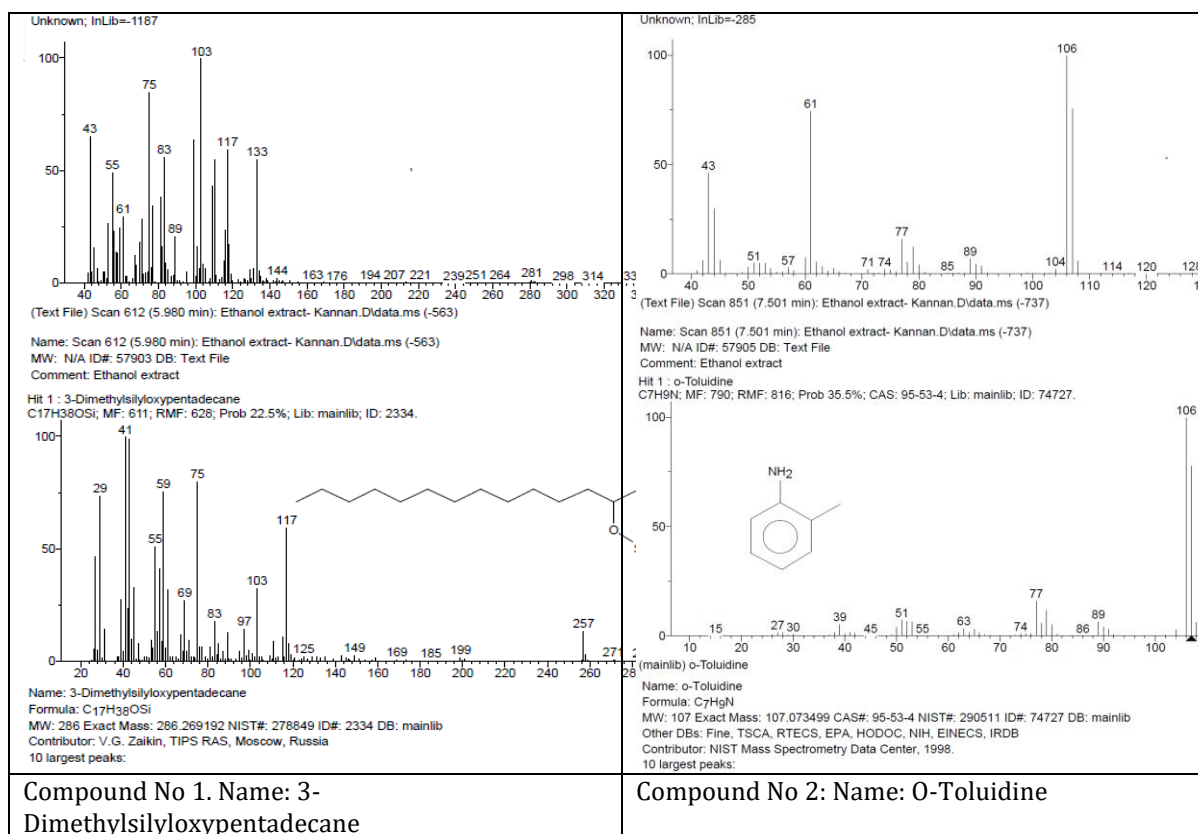
Gas-chromatography and Spectrometry are to recognize diverse materials present in the unknown samples. It includes diagnosis of drugs, unidentified specimens, fire investigation and environmental analysis.<sup>[6]</sup> GC-MS-a combination of Gas Chromatography and Mass Spectrometry, is used to analyze complex organic and biochemical mixtures.<sup>[7]</sup> The sample is then injected into the column and the carrier gas helium is used to flow at a rate of 1ml/minute. The injector is operated to inject the sample into the column at an injection mode of 10°C/minute. The oven temperature is programmed at 50-250°C. The ionization voltage of 70eV for ions and the mass range of 50-600 units of mass are used for chromatographic conditions. The National Institutional Standards and Technology (NIST) database of over 62,000 formats was used to describe the compounds isolated by GC-MS. Isolated components were then compared with the known mass spectrum of the NIST library.

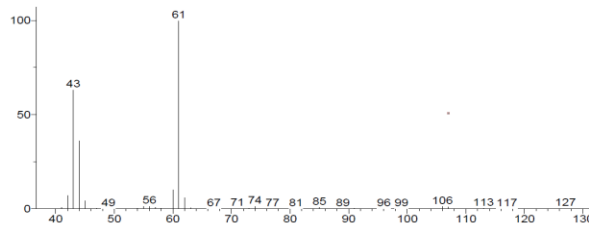
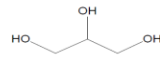
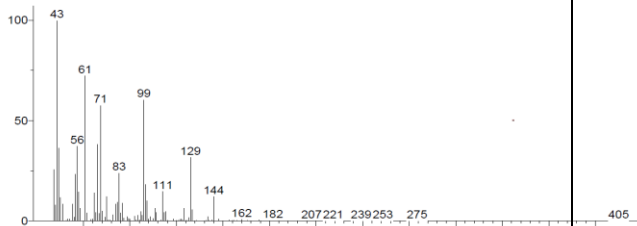
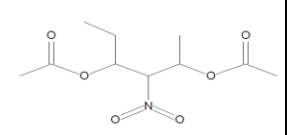
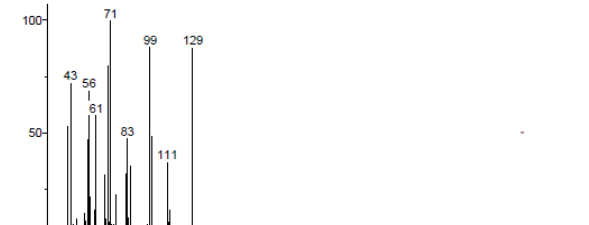
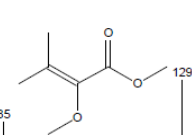
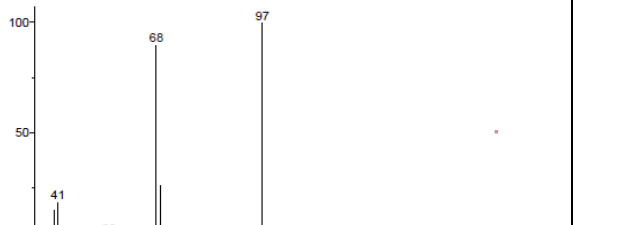
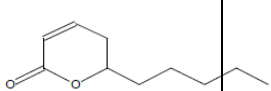
## Results

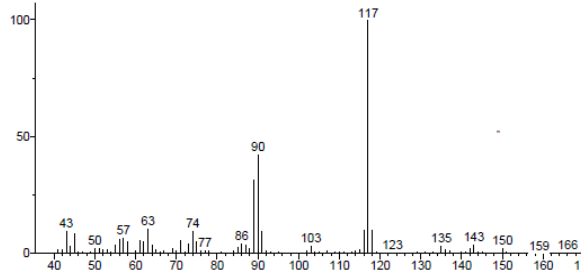
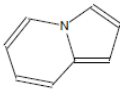
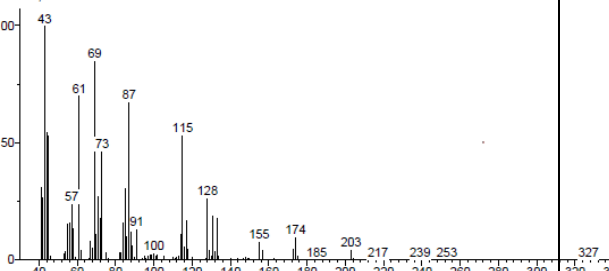
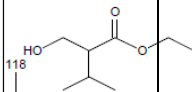
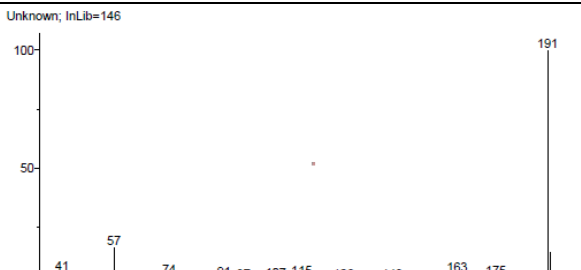
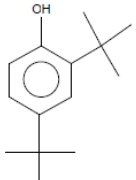
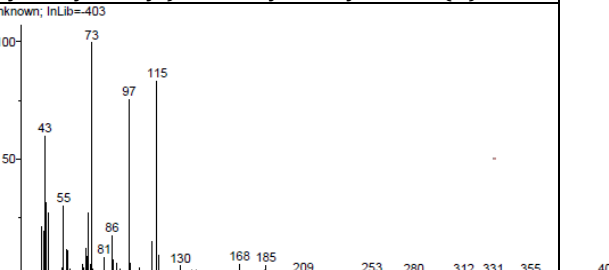
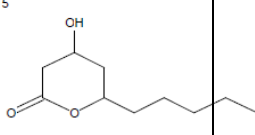
Table 1: Isolation and identification of active principle compounds from alcoholic extract from the root of *Corallocarpus epigaeus* L. based on Retention time, Molecular formula, and Molecular weight by using (GC/MS).

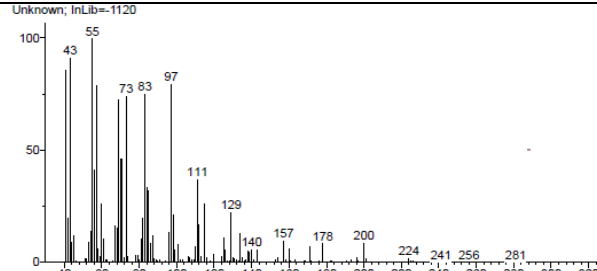
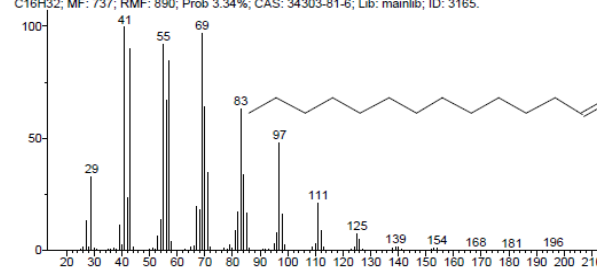
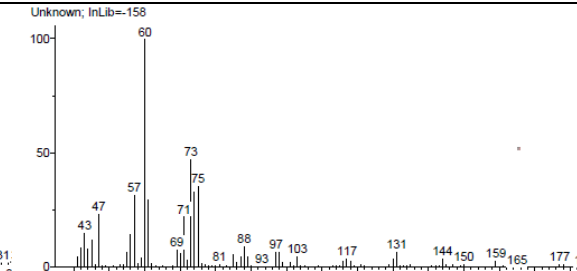
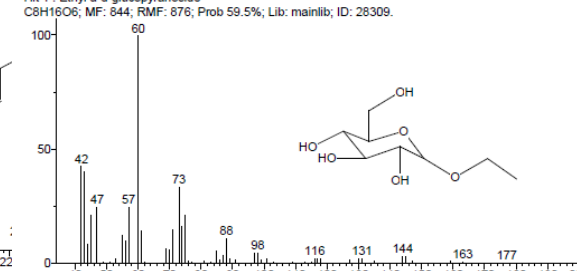
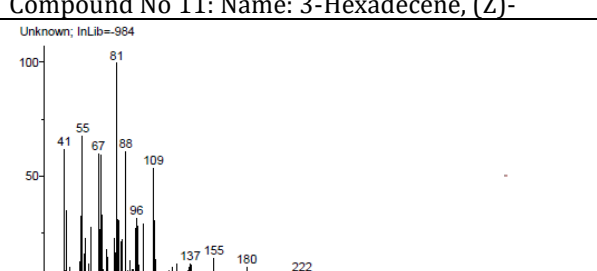
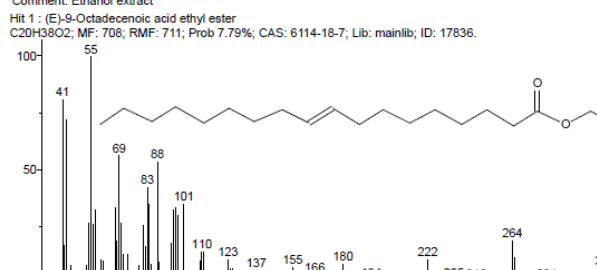
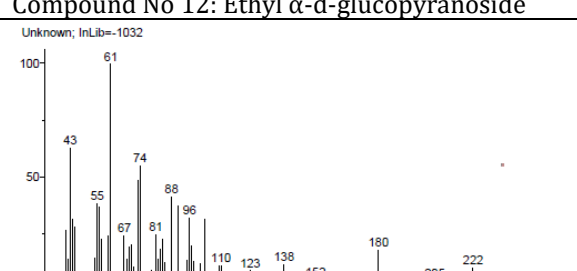
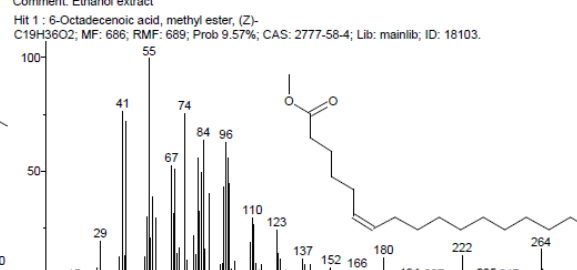
SNo	Isolated Compound	Empirical formula	Retention time	MW g/mol
1	3-Dimethylsilyloxypentadecane	C <sub>17</sub> H <sub>38</sub> OSi	5.986	286
2	O-Toluidine	C <sub>7</sub> H <sub>9</sub> N	7.463	107
3	Glycerin,	C <sub>3</sub> H <sub>8</sub> O <sub>3</sub>	8.560	92
4	Acetic acid, 3-acetoxy-1-ethyl-2-nitrobutyl ester,	C <sub>10</sub> H <sub>17</sub> NO <sub>6</sub>	8.945	247
5	2-Butenoic acid, 2-methoxy-3-methyl-, methyl ester	C <sub>7</sub> H <sub>12</sub> O <sub>3</sub>	9.429	144
6	2H-Pyran-2-one, 5,6-dihydro-6-pentyl-	C <sub>10</sub> H <sub>16</sub> O <sub>2</sub>	10.345	168
7	Indolizine	C <sub>8</sub> H <sub>7</sub> N	11.025	117
8	Butanoic acid, 2-(hydroxymethyl)-3-methyl-, ethyl ester, (R)-	C <sub>8</sub> H <sub>16</sub> O <sub>3</sub>	12.164	160.
9	Phenol, 2,4-bis(1,1-dimethylethyl)-	C <sub>14</sub> H <sub>22</sub> O	13.411	206
10	2H-Pyran-2-one, tetrahydro-4-hydroxy-6-pentyl-	C <sub>10</sub> H <sub>18</sub> O <sub>3</sub>	13.933	186
11	3-Hexadecene, (Z)-	C <sub>16</sub> H <sub>32</sub>	14.449	224
12	Ethyl α-d-glucopyranoside	C <sub>8</sub> H <sub>16</sub> O <sub>6</sub>	15.905	208
13	(E)-9-Octadecenoic acid ethyl ester	C <sub>20</sub> H <sub>38</sub> O <sub>2</sub>	17.184	310
14	6-Octadecenoic acid, methyl ester, (Z)-	C <sub>19</sub> H <sub>36</sub> O <sub>2</sub>	17.298	296
15	Pentadecanoic acid, ethyl ester	C <sub>17</sub> H <sub>34</sub> O <sub>2</sub>	17.458	270

16	cis-10-Heptadecenoic acid	C <sub>17</sub> H <sub>32</sub> O <sub>2</sub>	19.207	268
17	Heptadecanoic acid	C <sub>17</sub> H <sub>34</sub> O <sub>2</sub>	19.360	270
18	Eicosanoic acid, ethyl ester	C <sub>22</sub> H <sub>44</sub> O <sub>2</sub>	21.010	340
19	Nonadecanoic acid, ethyl ester	C <sub>21</sub> H <sub>42</sub> O <sub>2</sub>	21.359	326
20	Vitamin E	C <sub>29</sub> H <sub>50</sub> O <sub>2</sub>	21.631	430
21	Methyl 19-methyl-eicosanoate	C <sub>22</sub> H <sub>44</sub> O <sub>2</sub>	22.554	340
22	2-Hydroxy-4-methoxy-7-methyl-7,8,9,10,11,12,13,14-octahydro-6-oxabenzocyclododecen-5-one	C <sub>17</sub> H <sub>24</sub> O <sub>4</sub>	24.507	292
23	2-Hydroxy-4-methoxy-7-methyl-7,8,9,10,11,12,13,14-octahydro-6-oxabenzocyclododecen-5-one	C <sub>17</sub> H <sub>24</sub> O <sub>4</sub>	24.621	292
24	Docosanoic acid, ethyl ester	C <sub>24</sub> H <sub>48</sub> O <sub>2</sub>	25.862	368
25	Ethyl iso-allocholate	C <sub>26</sub> H <sub>44</sub> O <sub>5</sub>	28.209	436
26	9,12-Octadecadienoic acid (Z, Z)-, 2,3-dihydroxypropyl ester	C <sub>21</sub> H <sub>38</sub> O <sub>4</sub>	28.782	354

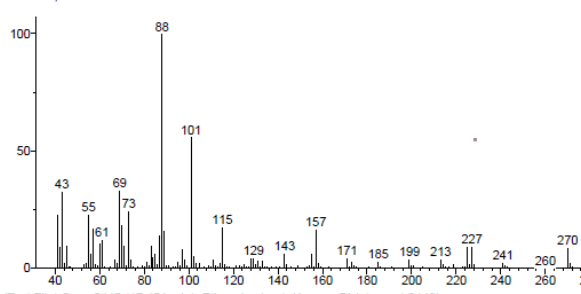
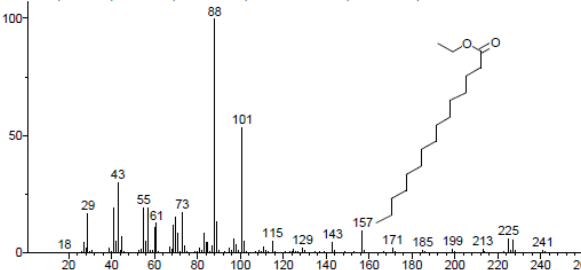
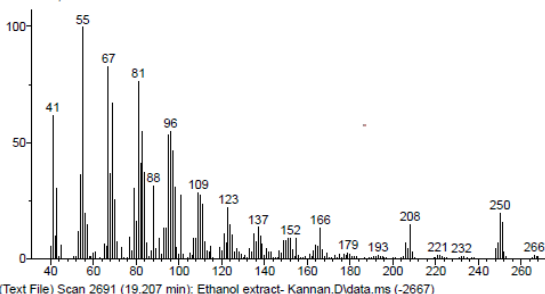
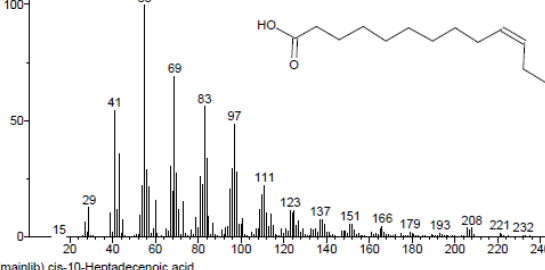
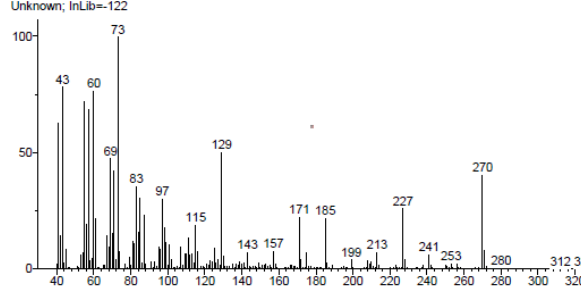
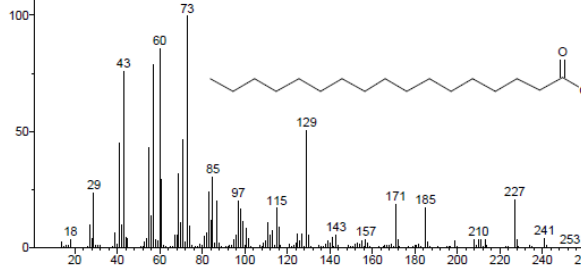
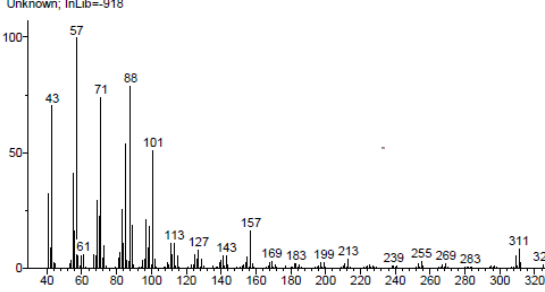
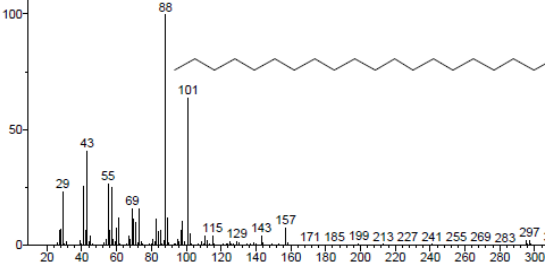


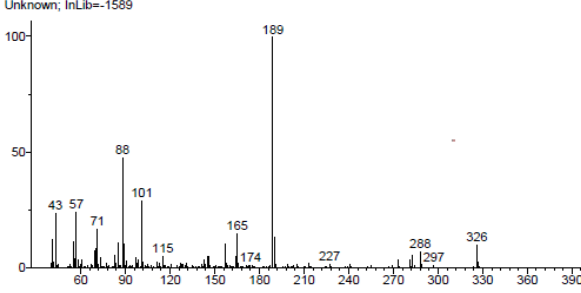
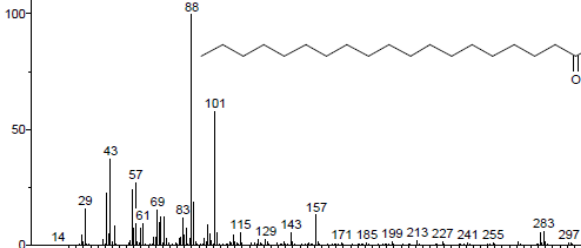
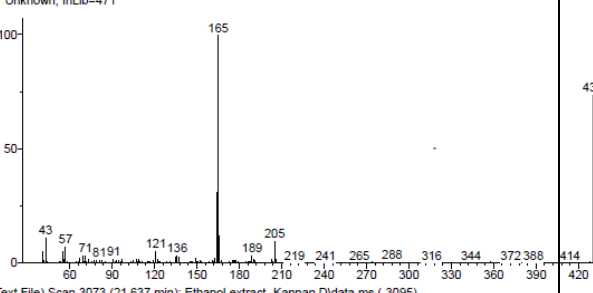
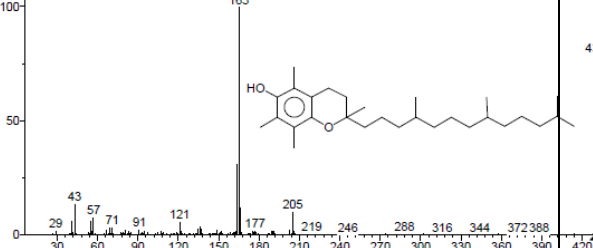
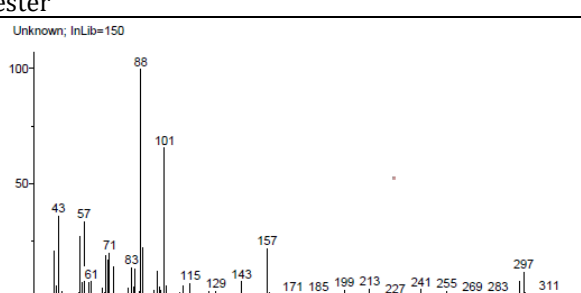
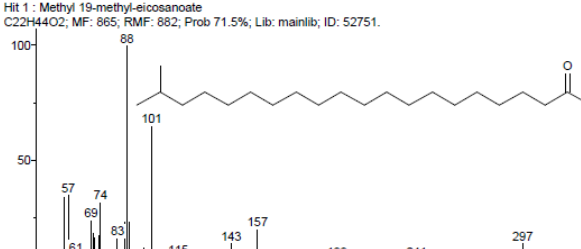
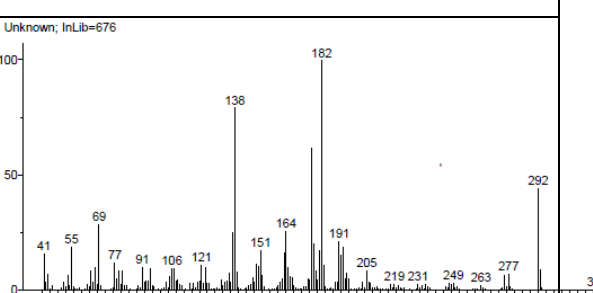
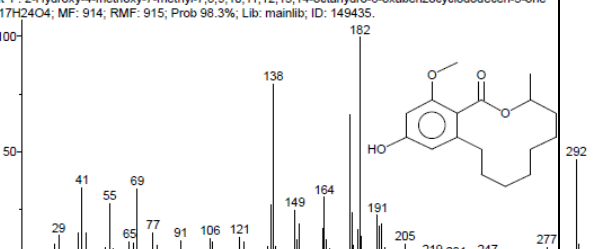
<p>Unknown; InLib=278</p>  <p>(Text File) Scan 1019 (8.570 min): Ethanol extract- Kannan.D\data.ms (-738)</p> <p>Name: Scan 1019 (8.570 min): Ethanol extract- Kannan.D\data.ms (-738)        MW: N/A ID#: 57906 DB: Text File        Comment: Ethanol extract</p> <p>Hit 1 : Glycerin  <chem>C3H8O3</chem>; MF: 887; RMF: 912; Prob 92.1%; CAS: 56-81-5; Lib: mainlib; ID: 28620.</p>  <p>(mainlib) Glycerin        Name: Glycerin        Formula: <chem>C3H8O3</chem>        MW: 92 Exact Mass: 92.047344 CAS#: 56-81-5 NIST#: 118748 ID#: 28620 DB: mainlib        Other DBs: Fine, TSCA, RTECS, USP, HODOC, NIH, EINECS, IRDB        Contributor: NIST Mass Spectrometry Data Center, 1990        Related CAS#: 29796-42-7; 37228-54-9; 75398-78-6; 78630-16-7; 8013-25-0        10 largest peaks:</p>	<p>Unknown; InLib=1302</p>  <p>(Text File) Scan 1077 (8.939 min): Ethanol extract- Kannan.D\data.ms (-1103)</p> <p>Name: Scan 1077 (8.939 min): Ethanol extract- Kannan.D\data.ms (-1103)        MW: N/A ID#: 57907 DB: Text File        Comment: Ethanol extract</p> <p>Hit 1 : Acetic acid, 3-acetoxy-1-ethyl-2-nitrobutyl ester  <chem>C10H17NO6</chem>; MF: 605; RMF: 635; Prob 4.34%; Lib: mainlib; ID: 9998.</p>  <p>(mainlib) Acetic acid, 3-acetoxy-1-ethyl-2-nitrobutyl ester        Name: Acetic acid, 3-acetoxy-1-ethyl-2-nitrobutyl ester        Formula: <chem>C10H17NO6</chem>        MW: 247 Exact Mass: 247.105587 NIST#: 192625 ID#: 9998 DB: mainlib        Contributor: Chemical Concepts        10 largest peaks:</p>
<p>Compound No 3: Name: Glycerin,</p>	<p>Compound No 4: Name: Acetic acid, 3-acetoxy-1-ethyl-2-nitrobutyl ester, Synonyms: 1.3-(Acetyloxy)-1-ethyl-2-nitrobutyl acetate,</p>
<p>Unknown; InLib=1224</p>  <p>(Text File) Scan 1155 (9.435 min): Ethanol extract- Kannan.D\data.ms (-1184)</p> <p>Name: Scan 1155 (9.435 min): Ethanol extract- Kannan.D\data.ms (-1184)        MW: N/A ID#: 57909 DB: Text File        Comment: Ethanol extract</p> <p>Hit 1 : 2-Butenoic acid, 2-methoxy-3-methyl-, methyl ester  <chem>C7H12O3</chem>; MF: 644; RMF: 665; Prob 16.8%; CAS: 56009-32-6; Lib: mainlib; ID: 7077.</p>  <p>(mainlib) 2-Butenoic acid, 2-methoxy-3-methyl-, methyl ester        Name: 2-Butenoic acid, 2-methoxy-3-methyl-, methyl ester        Formula: <chem>C7H12O3</chem>        MW: 144 Exact Mass: 144.078644 CAS#: 56009-32-6 NIST#: 353272 ID#: 7077 DB: mainlib        Other DBs: None        Contributor: NIST Mass Spectrometry Data Center        10 largest peaks:</p>	<p>Unknown; InLib=324</p>  <p>(Text File) Scan 1296 (10.332 min): Ethanol extract- Kannan.D\data.ms (-1276)</p> <p>Name: Scan 1296 (10.332 min): Ethanol extract- Kannan.D\data.ms (-1276)        MW: N/A ID#: 57909 DB: Text File        Comment: Ethanol extract</p> <p>Hit 1 : 2H-Pyran-2-one, 5,6-dihydro-6-pentyl-  <chem>C10H16O2</chem>; MF: 760; RMF: 788; Prob 57.6%; CAS: 54814-64-1; Lib: mainlib; ID: 63604.</p>  <p>(mainlib) 2H-Pyran-2-one, 5,6-dihydro-6-pentyl-        Name: 2H-Pyran-2-one, 5,6-dihydro-6-pentyl-        Formula: <chem>C10H16O2</chem>        MW: 168 Exact Mass: 168.115029 CAS#: 54814-64-1 NIST#: 161011 ID#: 63604 DB: mainlib        Other DBs: EINECS        Contributor: Chemical Concepts        Related CAS#: 501-23-5        10 largest peaks:</p>
<p>Compound No 5: Name: 2-Butenoic acid, 2-methoxy-3-methyl-, methyl ester</p>	<p>Compound No 6: Name: 2H-Pyran-2-one, 5,6-dihydro-6-pentyl-</p>

<p>Unknown; InLib=-388</p>  <p>(Text File) Scan 1405 (11.025 min): Ethanol extract- Kannan.D\data.ms (-1352)</p> <p>Name: Scan 1405 (11.025 min): Ethanol extract- Kannan.D\data.ms (-1352)        MW: N/A ID#: 57910 DB: Text File        Comment: Ethanol extract</p> <p>Hit 1 : Indolizine        C<sub>8</sub>H<sub>7</sub>N; MF: 802; RMF: 869; Prob 33.2%; CAS: 274-40-8; Lib: mainlib; ID: 86936.</p>  <p>(mainlib) Indolizine        Name: Indolizine        Formula: C<sub>8</sub>H<sub>7</sub>N        MW: 117 Exact Mass: 117.0578494 CAS#: 274-40-8 NIST#: 196316 ID#: 86936 DB: mainlib        Other DBs: HODOC        Contributor: Chemical Concepts        10 largest peaks:</p>	<p>Unknown; InLib=-1949</p>  <p>(Text File) Scan 1583 (12.158 min): Ethanol extract- Kannan.D\data.ms (-1646)</p> <p>Name: Scan 1583 (12.158 min): Ethanol extract- Kannan.D\data.ms (-1646)        MW: N/A ID#: 57912 DB: Text File        Comment: Ethanol extract</p> <p>Hit 1 : Butanoic acid, 2-(hydroxymethyl)-3-methyl-, ethyl ester, (R)-        C<sub>8</sub>H<sub>16</sub>O<sub>3</sub>; MF: 596; RMF: 665; Prob 7.87%; CAS: 87884-39-7; Lib: mainlib; ID: 83277.</p>  <p>(mainlib) Butanoic acid, 2-(hydroxymethyl)-3-methyl-, ethyl ester, (R)-        Name: Butanoic acid, 2-(hydroxymethyl)-3-methyl-, ethyl ester, (R)-        Formula: C<sub>8</sub>H<sub>16</sub>O<sub>3</sub>        MW: 160 Exact Mass: 160.109944 CAS#: 87884-39-7 NIST#: 188148 ID#: 83277 DB: mainlib        Other DBs: None        Contributor: Chemical Concepts        10 largest peaks:</p>
<p>Compound No 7: Name: Indolizine</p>	<p>Compound No 8: Name: Butanoic acid, 2-(hydroxymethyl)-3-methyl-, ethyl ester, (R)-</p>
<p>Unknown; InLib=146</p>  <p>(Text File) Scan 1784 (13.437 min): Ethanol extract- Kannan.D\data.ms (-1746)</p> <p>Name: Scan 1784 (13.437 min): Ethanol extract- Kannan.D\data.ms (-1746)        MW: N/A ID#: 57913 DB: Text File        Comment: Ethanol extract</p> <p>Hit 1 : Phenol, 2,4-bis(1,1-dimethylethyl)-        C<sub>14</sub>H<sub>22</sub>O; MF: 894; RMF: 902; Prob 54.8%; CAS: 96-76-4; Lib: mainlib; ID: 156338.</p>  <p>(mainlib) Phenol, 2,4-bis(1,1-dimethylethyl)-        Name: Phenol, 2,4-bis(1,1-dimethylethyl)-        Formula: C<sub>14</sub>H<sub>22</sub>O        MW: 206 Exact Mass: 206.167066 CAS#: 96-76-4 NIST#: 228966 ID#: 156338 DB: mainlib        Other DBs: Fine, TSCA, RTECS, EPA, HODOC, NIH, EINECS, IRDB        Contributor: Japan AIST/NIMC Database- Spectrum MS-NW-1860        10 largest peaks:</p>	<p>Unknown; InLib=403</p>  <p>(Text File) Scan 1861 (13.927 min): Ethanol extract- Kannan.D\data.ms (-1844)</p> <p>Name: Scan 1861 (13.927 min): Ethanol extract- Kannan.D\data.ms (-1844)        MW: N/A ID#: 57914 DB: Text File        Comment: Ethanol extract</p> <p>Hit 1 : 2H-Pyran-2-one, tetrahydro-4-hydroxy-6-pentyl-        C<sub>10</sub>H<sub>18</sub>O<sub>3</sub>; MF: 715; RMF: 768; Prob 47.9%; CAS: 36555-25-6; Lib: mainlib; ID: 9866.</p>  <p>(mainlib) 2H-Pyran-2-one, tetrahydro-4-hydroxy-6-pentyl-        Name: 2H-Pyran-2-one, tetrahydro-4-hydroxy-6-pentyl-        Formula: C<sub>10</sub>H<sub>18</sub>O<sub>3</sub>        MW: 186 Exact Mass: 186.125594 CAS#: 36555-25-6 NIST#: 161012 ID#: 9866 DB: mainlib        Other DBs: None        Contributor: Chemical Concepts        10 largest peaks:</p>
<p>Compound No 9: Name: Phenol, 2,4-bis(1,1-dimethylethyl)-</p>	<p>Compound No 10: Name: 2H-Pyran-2-one, tetrahydro-4-hydroxy-6-pentyl-</p>

<p>Unknown; InLib=-1120</p>  <p>(Text File) Scan 1894 (14.137 min): Ethanol extract- Kannan.D\data.ms (-1935)</p> <p>Name: Scan 1894 (14.137 min): Ethanol extract- Kannan.D\data.ms (-1935)        MW: N/A ID#: 57915 DB: Text File        Comment: Ethanol extract        Hit 1: 3-Hexadecene, (Z)-        C<sub>16</sub>H<sub>32</sub>; MF: 737; RMF: 890; Prob 3.34%; CAS: 34303-81-6; Lib: mainlib; ID: 3165.</p>  <p>(mainlib) 3-Hexadecene, (Z)-        Name: 3-Hexadecene, (Z)-        Formula: C<sub>16</sub>H<sub>32</sub>        MW: 224 Exact Mass: 224.2504015 CAS#: 34303-81-6 NIST#: 62797 ID#: 3165 DB: mainlib        Other DBs: None        Contributor: D.HENNEBERG, MAX-PLANCK INSTITUTE, MULHEIM, WEST GERMANY        10 largest peaks:</p>	<p>Unknown; InLib=-158</p>  <p>(Text File) Scan 2164 (15.854 min): Ethanol extract- Kannan.D\data.ms (-2085)</p> <p>Name: Scan 2164 (15.854 min): Ethanol extract- Kannan.D\data.ms (-2085)        MW: N/A ID#: 57916 DB: Text File        Comment: Ethanol extract        Hit 1: Ethyl α-d-glucopyranoside        C<sub>8</sub>H<sub>16</sub>O<sub>6</sub>; MF: 844; RMF: 876; Prob 59.5%; Lib: mainlib; ID: 28309.</p>  <p>(mainlib) Ethyl α-d-glucopyranoside        Name: Ethyl α-d-glucopyranoside        Formula: C<sub>8</sub>H<sub>16</sub>O<sub>6</sub>        MW: 208 Exact Mass: 208.094688 NIST#: 127294 ID#: 28309 DB: mainlib        Contributor: LAC, NIDDK, NIH, Bethesda, MD 20892        10 largest peaks:</p>
<p>Compound No 11: Name: 3-Hexadecene, (Z)-</p> <p>Unknown; InLib=-984</p>  <p>(Text File) Scan 2372 (17.178 min): Ethanol extract- Kannan.D\data.ms (-2350)</p> <p>Name: Scan 2372 (17.178 min): Ethanol extract- Kannan.D\data.ms (-2350)        MW: N/A ID#: 57918 DB: Text File        Comment: Ethanol extract        Hit 1: (E)-9-Octadecenoic acid ethyl ester        C<sub>20</sub>H<sub>38</sub>O<sub>2</sub>; MF: 708; RMF: 711; Prob 7.79%; CAS: 6114-18-7; Lib: mainlib; ID: 17836.</p>  <p>(mainlib) (E)-9-Octadecenoic acid ethyl ester        Name: (E)-9-Octadecenoic acid ethyl ester        Formula: C<sub>20</sub>H<sub>38</sub>O<sub>2</sub>        MW: 310 Exact Mass: 310.28718 CAS#: 6114-18-7 NIST#: 130916 ID#: 17836 DB: mainlib        Other DBs: HODOC, EINECS        Contributor: J. Klune, Insect Chem. Ecol. Lab., USDA, Beltsville, MD 20705        10 largest peaks:</p>	<p>Compound No 12: Name: Ethyl α-d-glucopyranoside</p> <p>Unknown; InLib=-1032</p>  <p>(Text File) Scan 2391 (17.298 min): Ethanol extract- Kannan.D\data.ms (-2446)</p> <p>Name: Scan 2391 (17.298 min): Ethanol extract- Kannan.D\data.ms (-2446)        MW: N/A ID#: 57919 DB: Text File        Comment: Ethanol extract        Hit 1: 6-Octadecenoic acid, methyl ester, (Z)-        C<sub>19</sub>H<sub>36</sub>O<sub>2</sub>; MF: 686; RMF: 689; Prob 9.57%; CAS: 2777-58-4; Lib: mainlib; ID: 18103.</p>  <p>(mainlib) 6-Octadecenoic acid, methyl ester, (Z)-        Name: 6-Octadecenoic acid, methyl ester, (Z)-        Formula: C<sub>19</sub>H<sub>36</sub>O<sub>2</sub>        MW: 296 Exact Mass: 296.27153 CAS#: 2777-58-4 NIST#: 333217 ID#: 18103 DB: mainlib        Other DBs: EINECS        Contributor: NIST Mass Spectrometry Data Center        10 largest peaks:</p>
<p>Compound No 13: Name: E-9-Octadecenoic acid ethyl ester</p>	<p>Compound No 14: Name: 6-Octadecenoic acid, methyl ester, (Z)-</p>

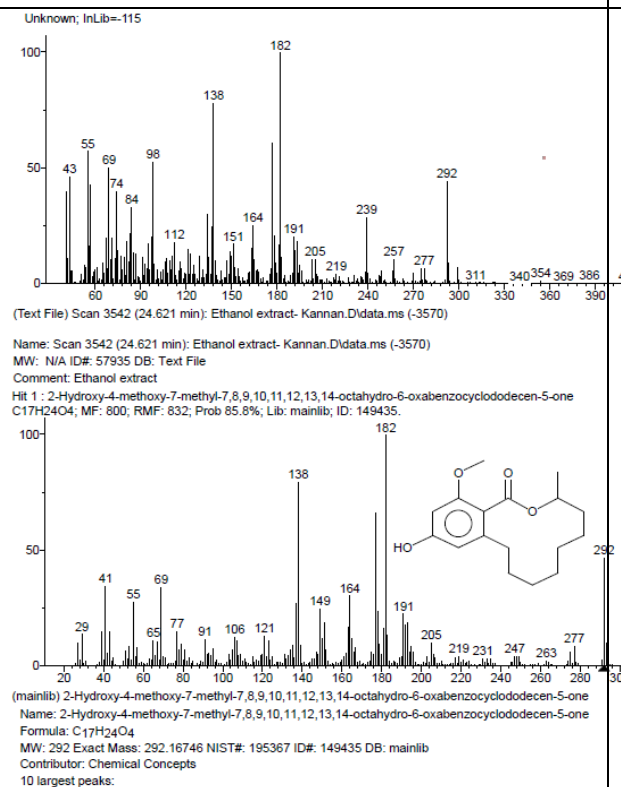


<p>Unknown; InLib=122</p>  <p>(Text File) Scan 2415 (17.451 min): Ethanol extract- Kannan.D\data.ms (-2443)</p> <p>Name: Scan 2415 (17.451 min): Ethanol extract- Kannan.D\data.ms (-2443)        MW: N/A ID#: 57920 DB: Text File        Comment: Ethanol extract        Hit 1 : Pentadecanoic acid, ethyl ester        C17H34O2; MF: 864; RMF: 893; Prob 70.8%; CAS: 41114-00-5; Lib: mainlib; ID: 52728.</p>  <p>(mainlib) Pentadecanoic acid, ethyl ester        Name: Pentadecanoic acid, ethyl ester        Formula: C17H34O2        MW: 270 Exact Mass: 270.25588 CAS#: 41114-00-5 NIST#: 233156 ID#: 52728 DB: mainlib        Other DBs: Fine, EINECS, IRDB        Contributor: Japan AIST/NIMC Database- Spectrum MS-NW-8309        10 largest peaks:</p>	<p>Unknown; InLib=509</p>  <p>(Text File) Scan 2691 (19.207 min): Ethanol extract- Kannan.D\data.ms (-2667)</p> <p>Name: Scan 2691 (19.207 min): Ethanol extract- Kannan.D\data.ms (-2667)        MW: N/A ID#: 57925 DB: Text File        Comment: Ethanol extract        Hit 1 : cis-10-Heptadecenoic acid        C17H32O2; MF: 799; RMF: 812; Prob 12.3%; CAS: 29743-97-3; Lib: mainlib; ID: 18956.</p>  <p>(mainlib) cis-10-Heptadecenoic acid        Name: cis-10-Heptadecenoic acid        Formula: C17H32O2        MW: 268 Exact Mass: 268.24023 CAS#: 29743-97-3 NIST#: 333623 ID#: 18956 DB: mainlib        Other DBs: None        Contributor: NIST Mass Spectrometry Data Center        10 largest peaks:</p>
<p>Compound No 15: Pentadecanoic acid, ethyl ester</p> <p>Unknown; InLib=-122</p>  <p>(Text File) Scan 2713 (19.347 min): Ethanol extract- Kannan.D\data.ms (-2746)</p> <p>Name: Scan 2713 (19.347 min): Ethanol extract- Kannan.D\data.ms (-2746)        MW: N/A ID#: 57926 DB: Text File        Comment: Ethanol extract        Hit 1 : Heptadecanoic acid        C17H34O2; MF: 848; RMF: 860; Prob 68.1%; CAS: 506-12-7; Lib: mainlib; ID: 37463.</p>  <p>(mainlib) Heptadecanoic acid        Name: Heptadecanoic acid        Formula: C17H34O2        MW: 270 Exact Mass: 270.25588 CAS#: 506-12-7 NIST#: 231679 ID#: 37463 DB: mainlib        Other DBs: Fine, TSCA, RTECS, HODOC, NIH, EINECS, IRDB        Contributor: Japan AIST/NIMC Database- Spectrum MS-NW-2626        10 largest peaks:</p>	<p>Compound No 16: Name: cis-10-Heptadecenoic acid</p> <p>Unknown; InLib=-918</p>  <p>(Text File) Scan 3447 (24.017 min): Ethanol extract- Kannan.D\data.ms (-3471)</p> <p>Name: Scan 3447 (24.017 min): Ethanol extract- Kannan.D\data.ms (-3471)        MW: N/A ID#: 57933 DB: Text File        Comment: Ethanol extract        Hit 1 : Eicosanoic acid, ethyl ester        C22H44O2; MF: 693; RMF: 781; Prob 21.3%; CAS: 18281-05-5; Lib: mainlib; ID: 52719.</p>  <p>(mainlib) Eicosanoic acid, ethyl ester        Name: Eicosanoic acid, ethyl ester        Formula: C22H44O2        MW: 340 Exact Mass: 340.33413 CAS#: 18281-05-5 NIST#: 151366 ID#: 52719 DB: mainlib        Other DBs: HODOC, IRDB        Contributor: Chemical Concepts        10 largest peaks:</p>
<p>Compound No 17: Name: Heptadecanoic acid</p>	<p>Compound No 18: Name: Eicosanoic acid, ethyl ester</p>

<p>Unknown; InLib=-1589</p>  <p>(Text File) Scan 3029 (21.357 min): Ethanol extract- Kannan.D\data.ms (-3013)</p> <p>Name: Scan 3029 (21.357 min): Ethanol extract- Kannan.D\data.ms (-3013)        MW: N/A ID#: 57930 DB: Text File        Comment: Ethanol extract        Hit 1: Nonadecanoic acid, ethyl ester        C<sub>21</sub>H<sub>42</sub>O<sub>2</sub>; MF: 556; RMF: 765; Prob 11.0%; CAS: 18281-04-4; Lib: mainlib; ID: 52717.</p>  <p>(mainlib) Nonadecanoic acid, ethyl ester        Name: Nonadecanoic acid, ethyl ester        Formula: C<sub>21</sub>H<sub>42</sub>O<sub>2</sub>        MW: 326 Exact Mass: 326.318481 CAS#: 18281-04-4 NIST#: 233004 ID#: 52717 DB: mainlib        Other DBs: None        Contributor: Japan AIST/NIMC Database- Spectrum MS-NW-5987        10 largest peaks:</p>	<p>Unknown; InLib=471</p>  <p>(Text File) Scan 3073 (21.637 min): Ethanol extract- Kannan.D\data.ms (-3095)</p> <p>Name: Scan 3073 (21.637 min): Ethanol extract- Kannan.D\data.ms (-3095)        MW: N/A ID#: 57931 DB: Text File        Comment: Ethanol extract        Hit 1: Vitamin E        C<sub>29</sub>H<sub>50</sub>O<sub>2</sub>; MF: 908; RMF: 909; Prob 39.3%; CAS: 59-02-9; Lib: mainlib; ID: 136995.</p>  <p>(mainlib) Vitamin E        Name: Vitamin E        Formula: C<sub>29</sub>H<sub>50</sub>O<sub>2</sub>        MW: 430 Exact Mass: 430.38108 CAS#: 59-02-9 NIST#: 374713 ID#: 136995 DB: mainlib        Other DBs: TSCA, RTECS, HODOC, NIH, EINECS        Contributor: NIST Mass Spectrometry Data Center, 2010        Related CAS#: 18920-62-2; 121854-78-2; 364-49-8        10 largest peaks:</p>
<p>Compound No 19: Name: Nonadecanoic acid, ethyl ester</p> <p>Unknown; InLib=150</p>  <p>(Text File) Scan 3218 (22.560 min): Ethanol extract- Kannan.D\data.ms (-3233)</p> <p>Name: Scan 3218 (22.560 min): Ethanol extract- Kannan.D\data.ms (-3233)        MW: N/A ID#: 57932 DB: Text File        Comment: Ethanol extract        Hit 1: Methyl 19-methyl-eicosanoate        C<sub>22</sub>H<sub>44</sub>O<sub>2</sub>; MF: 865; RMF: 862; Prob 71.5%; Lib: mainlib; ID: 52751.</p>  <p>(mainlib) Methyl 19-methyl-eicosanoate        Name: Methyl 19-methyl-eicosanoate        Formula: C<sub>22</sub>H<sub>44</sub>O<sub>2</sub>        MW: 340 Exact Mass: 340.334131 NIST#: 336238 ID#: 52751 DB: mainlib        Contributor: William W. Christie, Mylinefield Lipid Analysis, Invergowrie, Dundee, Scotland, UK        10 largest peaks:</p>	<p>Compound No 20: Name: Vitamin E</p> <p>Unknown; InLib=676</p>  <p>(Text File) Scan 3524 (24.507 min): Ethanol extract- Kannan.D\data.ms (-3590)</p> <p>Name: Scan 3524 (24.507 min): Ethanol extract- Kannan.D\data.ms (-3590)        MW: N/A ID#: 57934 DB: Text File        Comment: Ethanol extract        Hit 1: 2-Hydroxy-4-methoxy-7-methyl-7,8,9,10,11,12,13,14-octahydro-6-oxabenzocyclododecen-5-one        C<sub>17</sub>H<sub>24</sub>O<sub>4</sub>; MF: 914; RMF: 915; Prob 98.3%; Lib: mainlib; ID: 149435.</p>  <p>(mainlib) 2-Hydroxy-4-methoxy-7-methyl-7,8,9,10,11,12,13,14-octahydro-6-oxabenzocyclododecen-5-one        Name: 2-Hydroxy-4-methoxy-7-methyl-7,8,9,10,11,12,13,14-octahydro-6-oxabenzocyclododecen-5-one        Formula: C<sub>17</sub>H<sub>24</sub>O<sub>4</sub>        MW: 292 Exact Mass: 292.16746 NIST#: 195367 ID#: 149435 DB: mainlib        Contributor: Chemical Concepts        10 largest peaks:</p>

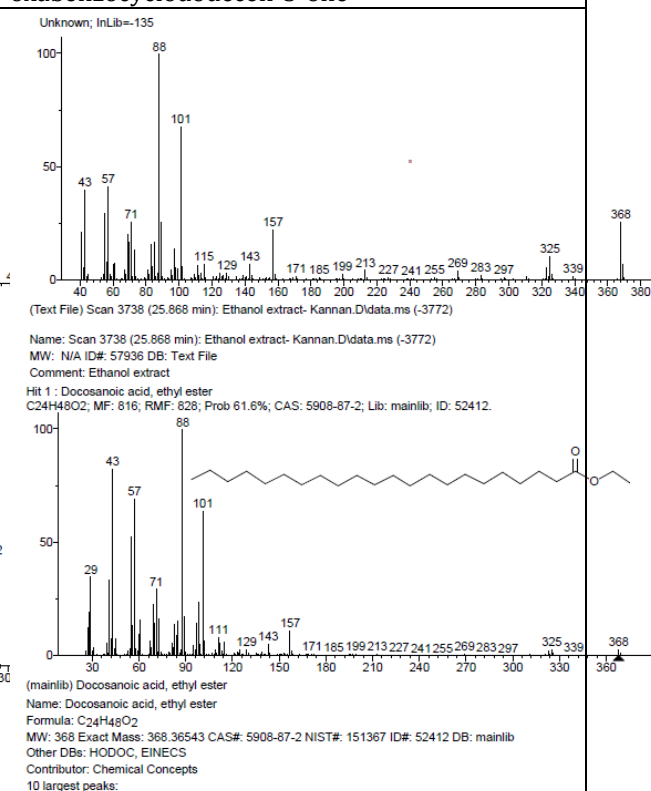


Compound No 21: Name: Methyl 19-methyl-eicosanoate



Compound No 23: Name: 2-Hydroxy-4-methoxy-7-methyl-7,8,9,10,11,12,13,14-octahydro-6-oxabenzocyclododecen-5-one

Compound No 22: Name: 2-Hydroxy-4-methoxy-7-methyl-7,8,9,10,11,12,13,14-octahydro-6-oxabenzocyclododecen-5-one



Compound No 24: Name: Docosanoic acid, ethyl ester

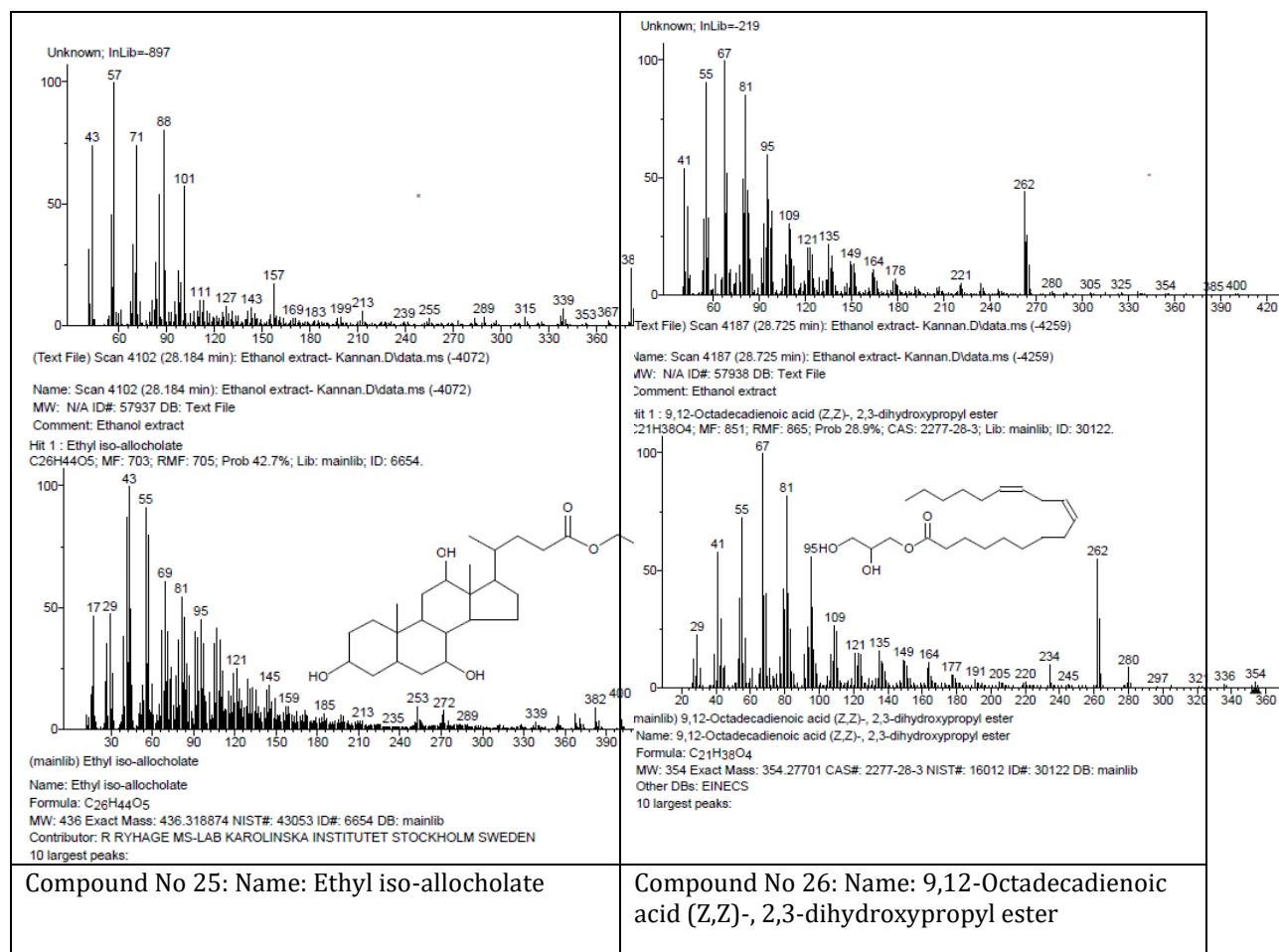


Figure 1: Ion chromatogram structure of individual isolated compounds of alcoholic extract from the root of *Corallocarpus epigaeus* L.

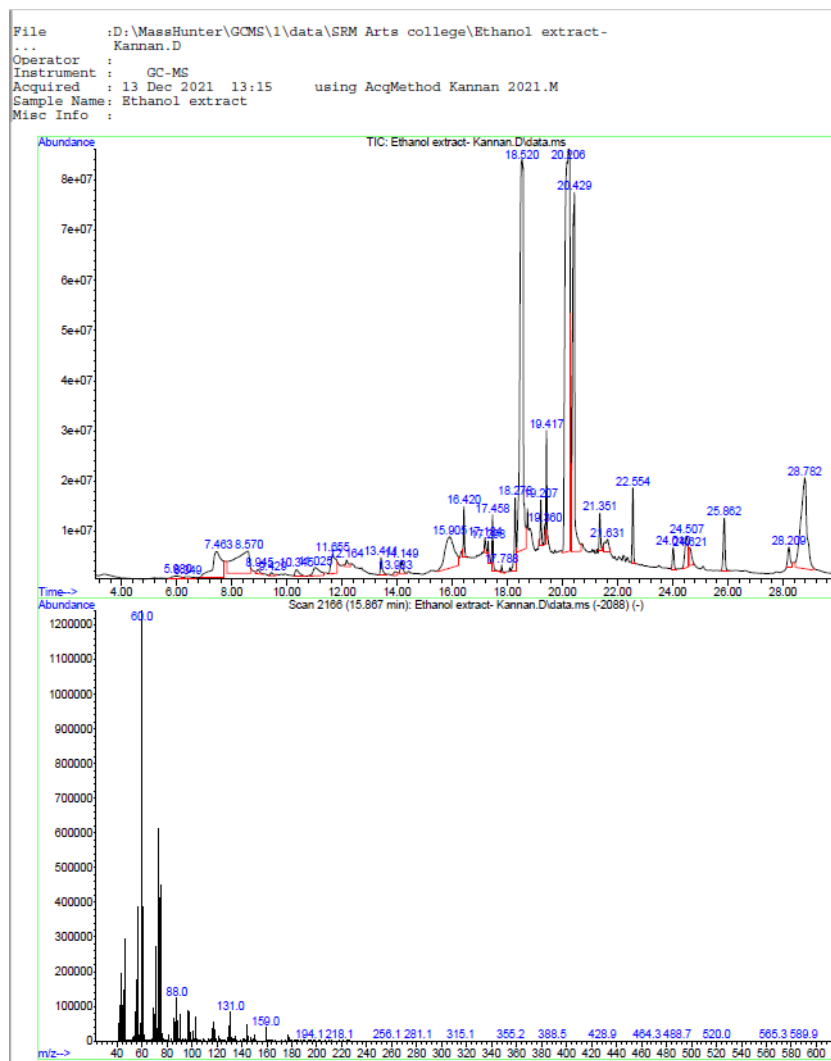


Figure 2: Total ionic chromatogram (GC/MS) of alcoholic extract from the root of *Corallocarpus epigaeus* L. obtained with 70eV using an Elite-1 fused silica capillary column with He gas as the carrier.

## Discussion

In this present study, we observed and reported about plenty of bioactive compounds by GC/MS analysis of ethanolic extracts from *Corallocarpus epigaeus* L. The identified bioactive compounds were compared & confirmed, with a mass spectral library of NIST. The names of isolated compounds along with the IUPAC name, composition, molecular formula, and molecular weight were shown in Tables 1 and Figure 1. Each compound has a unique property and its uses and nature were collected from PUBCHEM and PUBMED.<sup>[8]</sup> The most important applications of isolated compounds were emphasized here. Pentadecanoic acid, ethyl ester, heptadecanoic acid acts as antioxidant.<sup>[9]</sup> Phenol, 2,4-bis(1,1-dimethylethyl)- acts as antifungal and antioxidant activity.<sup>[10]</sup> Vitamin E also called as tocopherol act as antineoplastic,<sup>[11]</sup> anti-carcinogenesis,<sup>[12]</sup> anti-inflammatory,<sup>[13]</sup> and antioxidant.<sup>[14,15]</sup> It also helps to maintain healthy skin and eyes, and strengthen the body's natural defense against illness and infection (the immune system).<sup>[16]</sup> (E)-9-Octadecenoic acid ethyl ester and 6-Octadecenoic acid, methyl ester, (Z)- is a fatty acid ester has antioxidant and antimicrobial activity.<sup>[17]</sup> Ethyl iso-allocholate is a steroid molecule that has antimicrobial, diuretic, anti-inflammatory properties, and it is used as an anti-asthma (drug that relieves the symptoms of asthma).<sup>[18]</sup> Eicosanoic acid, ethyl ester is an arachidic acid which has and activity of  $\alpha$ -glucosidase inhibitors activity (Adverse effects of undigested carbohydrates in the lower gastrointestinal tract include flatulence, diarrhoea, and

abdominal pain).<sup>[19]</sup> Glycerin is used as Flavouring agent.<sup>[20]</sup> Nonadecanoic acid is a 19-carbon saturated fatty acid that is found in fats and vegetable oils. It has been shown to inhibit HL-60 cancer cell proliferation with an IC<sub>50</sub> value of 68 µM.<sup>[21]</sup> *Cis*-10-Heptadecenoic acid is a C17:1 monounsaturated fatty acid that is a minor constituent of ruminant fats. <sup>[22]</sup> It has been examined for potential antitumor activity and was reported to inhibit HL-60 cell proliferation with an IC<sub>50</sub> value of 302 µM and to prevent LPS-induced tumour necrosis factor production from mouse macrophages.<sup>[21]</sup> Ethyl α-d-glucopyranoside (sugar moiety) is a preservative.<sup>[23]</sup> Indolizine has various pharmacological properties which led to the development of new drugs such as CNS depressant, analgesic and anti-inflammatory, anticancer, antibacterial, antioxidant, larvicidal and anti-HIV.<sup>[24]</sup> 3-Hexadecene, (Z)- has insecticide, antibiotic, antioxidant, hypocholesterolemic activity. <sup>[25]</sup> The result of this present studies reveals that rhizome comprise antitubercular, anticancer, antifungal, antibacterial, antioxidant, and anti-inflammatory. Hence, *Corallocarpus epigaeus* L. may be an excellent remedy for the treatment of various diseases.

## Conclusion

In conclusion, after systematic analysis of this research work, plenty of bio active compounds that have been identified and documented. It will provide additional information about the efficacy of diverse biological properties such as antioxidant, anticancer, antifungal, antibacterial and anti-inflammatory activities related to this plant. This documentation and valuable information will support the efficacy of *Corallocarpus epigaeus* L.

## Acknowledgement

The authors would like to acknowledge Dr.R.Vasudevaraj, Principal and faculty members, from Postgraduate Department of Biochemistry, SRM Arts and Science College, Kattankulathur, Kanchipuram, district, for providing the necessary facilities, encouragement and constant support during this research work.

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