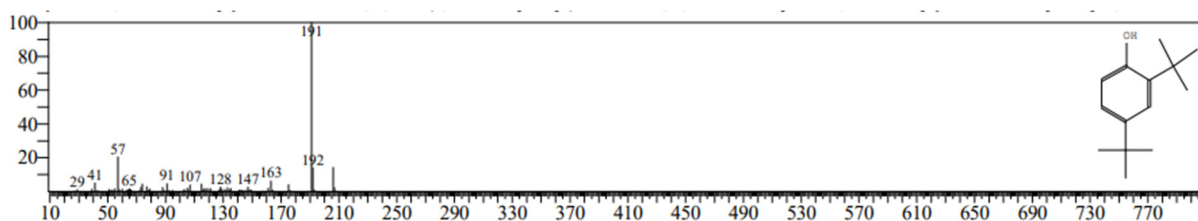


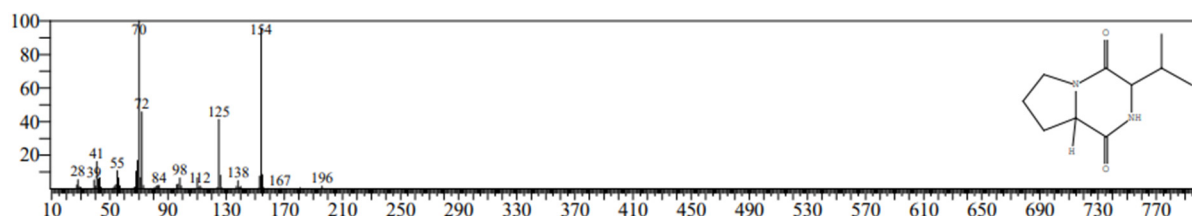
Supplementary Material

A total of 67 metabolites were produced by a combination of *S. indica* and *Z. sp.* ISTP4 under normal conditions and 37 metabolites were produced in As stress (out of which 16 metabolites were common)

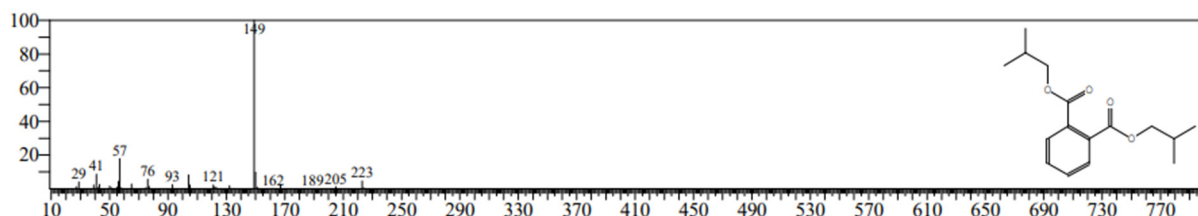
1. Compound name: 2,4-Di-tert-butyl-phenol) phosphate



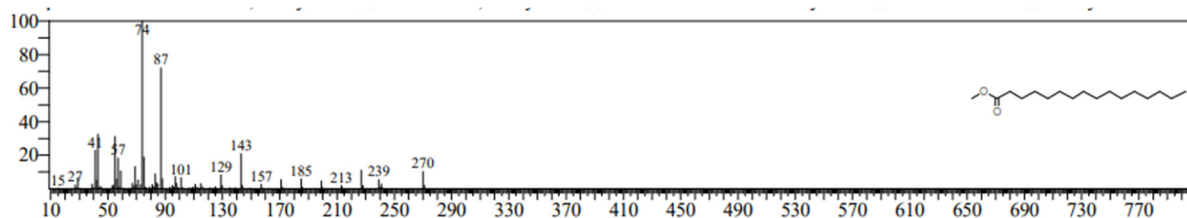
2. Compound name: Cyclo(L-prolyl-L-valine)



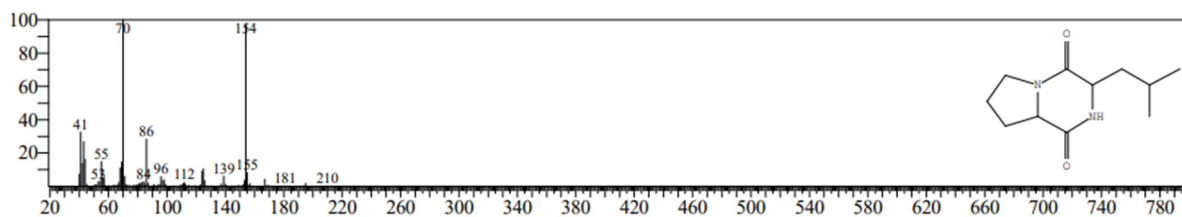
3. Compound name: 1,2-Benzenedicarboxylic acid, bis (2-methyl propyl) ester



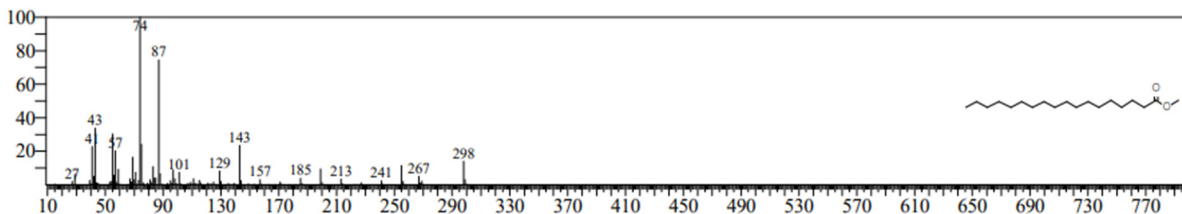
4. Compound name: Hexadecenoic acid, methyl ester



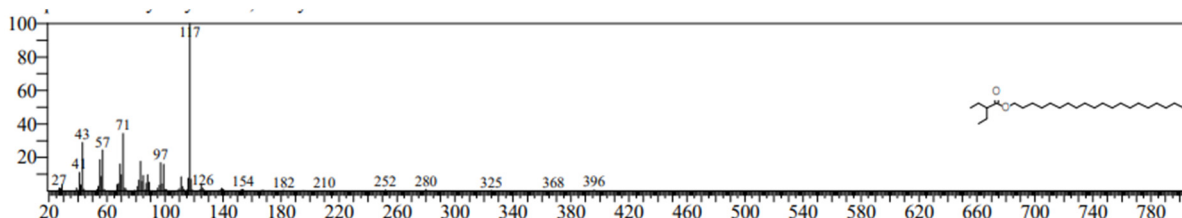
5. Compound name: Pyrrole[1,2-a] pyrazine-1,4-dione, hexahyd dro-3-(2-methyl propyl)



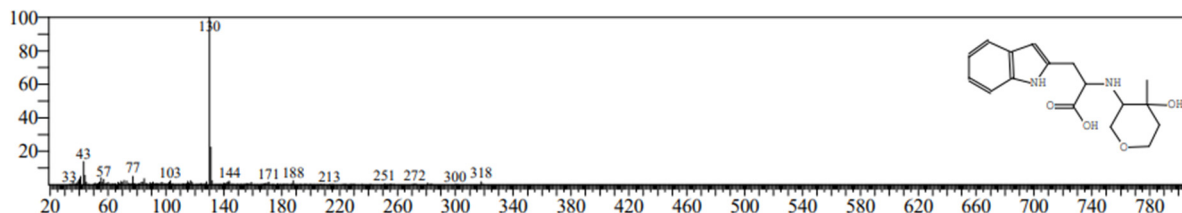
6. Compound name: Methyl stearate



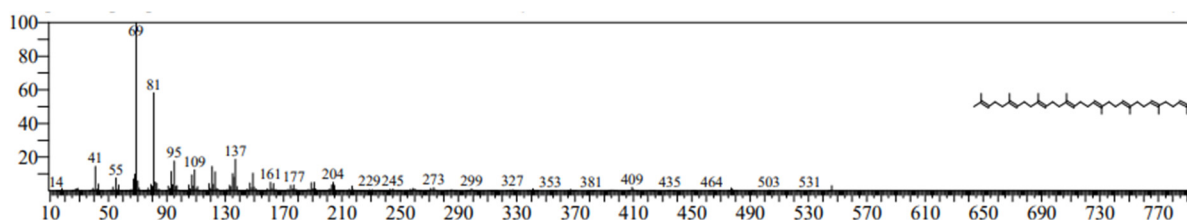
7. Compound name: 2-Ethylbutyric acid, eicosyl ester



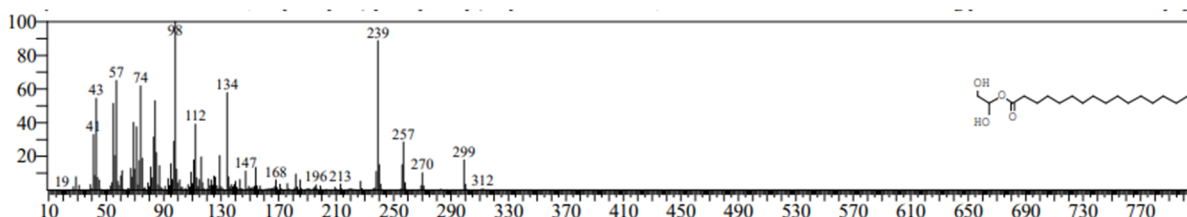
8. Compound name: 2-(4-Hydroxy-4-methyl-tetrahydro-pyran-3-ylamino)-3-(1H-indol-2-yl)-propionic acid



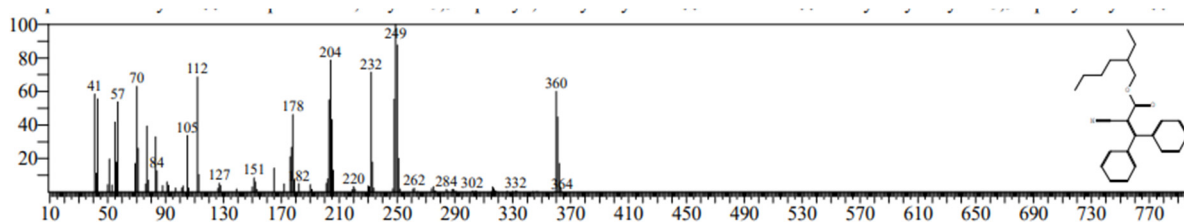
9. Compound name: Lycopene



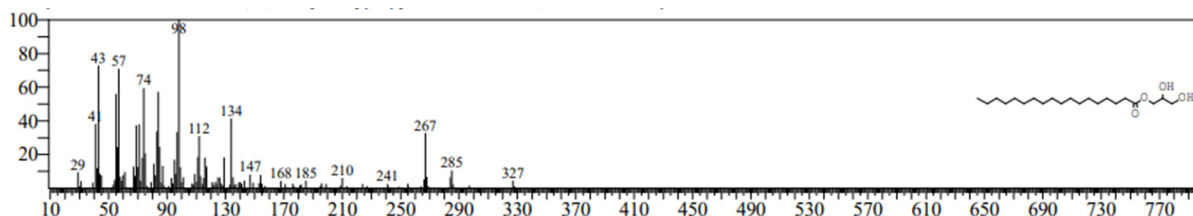
10. Compound name: Hexadecanoic acid, 2-hydroxy-1- (hydro oxymethyl) ethyl ester



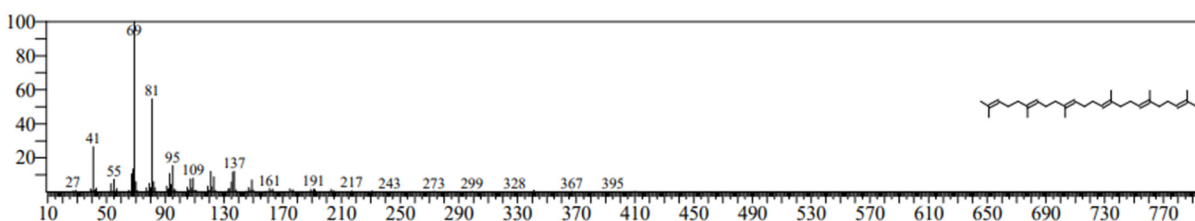
11. Compound name: Octocrylene 2-Propenoic acid



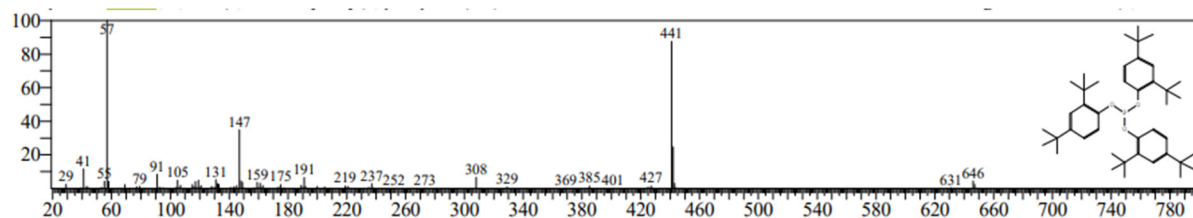
12. Compound name: Octadecanoic acid, 2,3-dihydroxypropyl ester



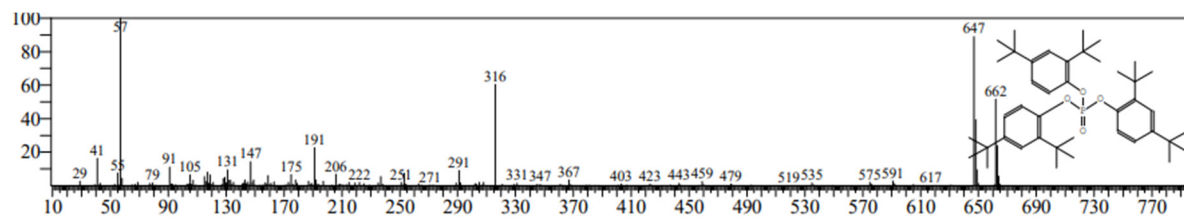
13. Compound name: Squalene e 2,6,10,14,18,22-Tetracosahexaene



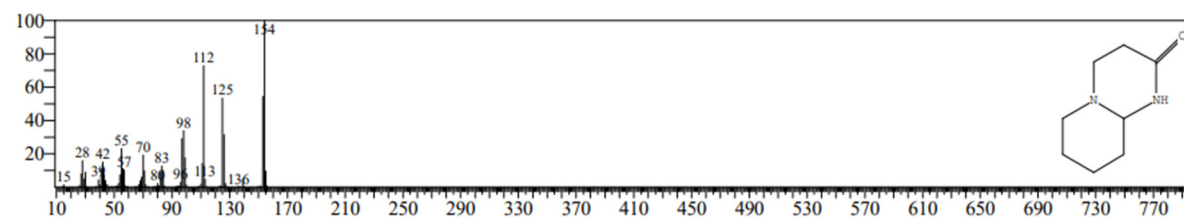
14. Compound name: Phenol, 2,4-bis (1,1-dimethyl ethyl)-, phosphite



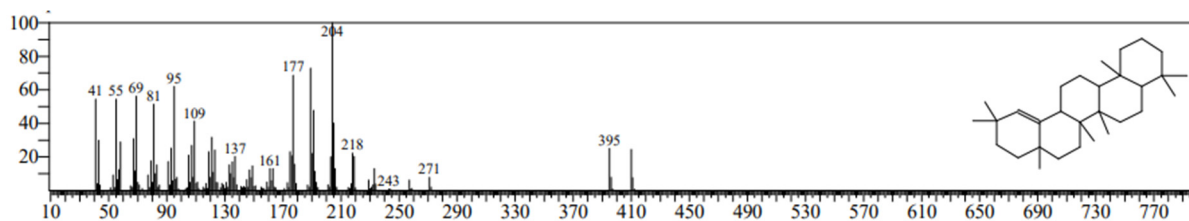
15. Compound name: Tris (2,4-di-tert-butyl phenyl) phosphate



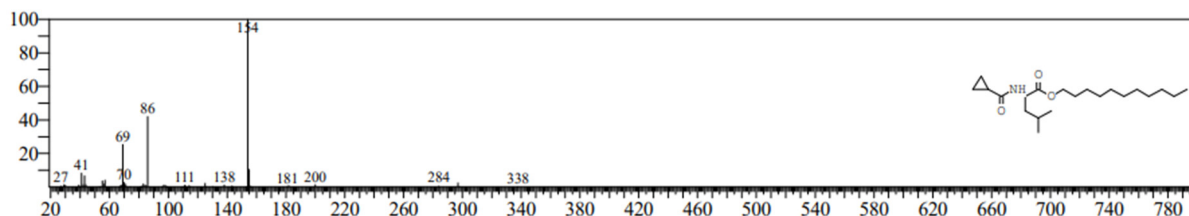
16. Compound name: Octahydro-2H-pyrido(1,2-a)pyrimidin-2-one



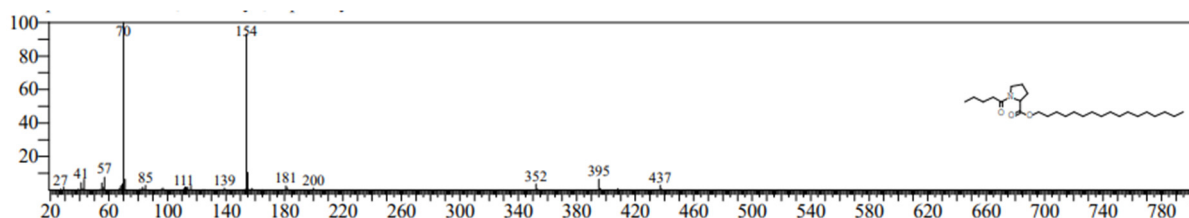
17. Compound name: Olean-18-ene



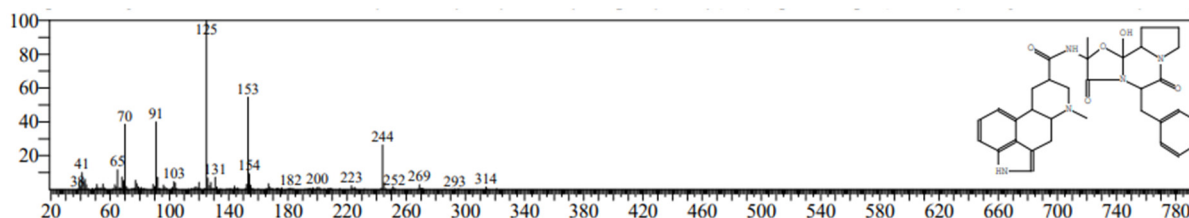
18. Compound name: l-Leucine



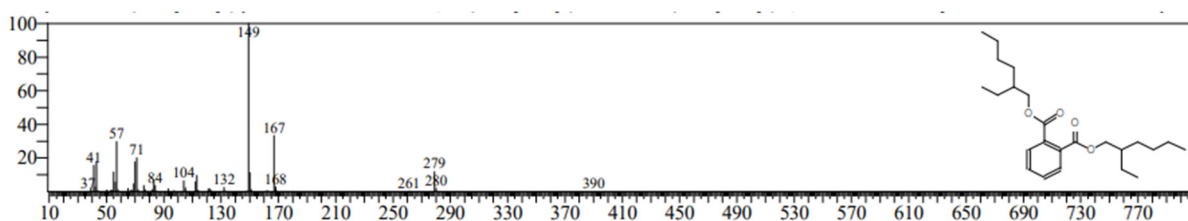
19. Compound name: L-Proline



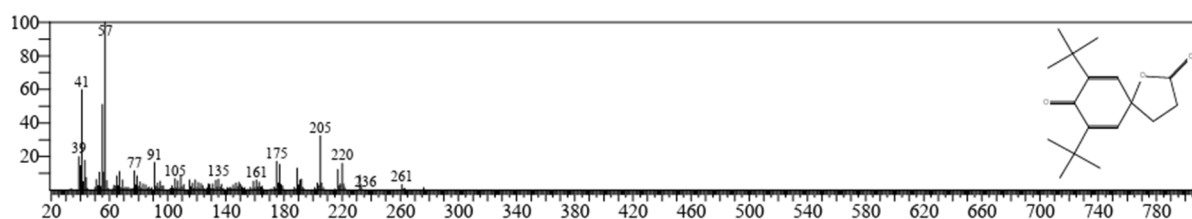
20. Compound name: Ergotaman-3',6',18-trione



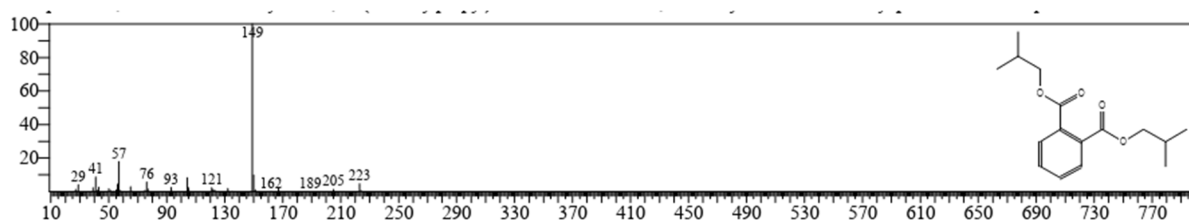
21. Compound name: Bis(2-ethylhexyl) phthalate



22. Compound name: 7,9-Di-tert-butyl-1-oxaspiro (4,5) deca-a-6,9-diene-2,8-dione

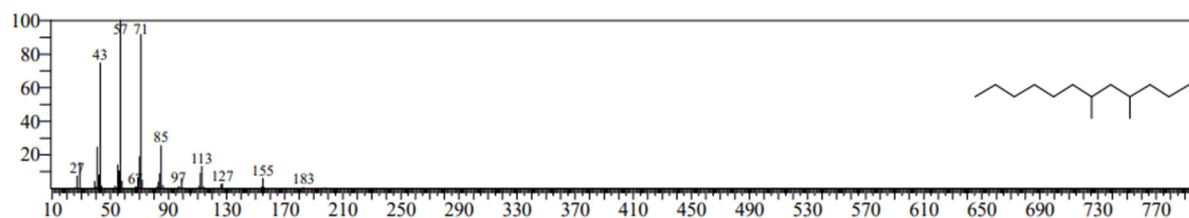


23. Compound name: 1,2-Benzenedicarboxylic acid, butyl octyl ester

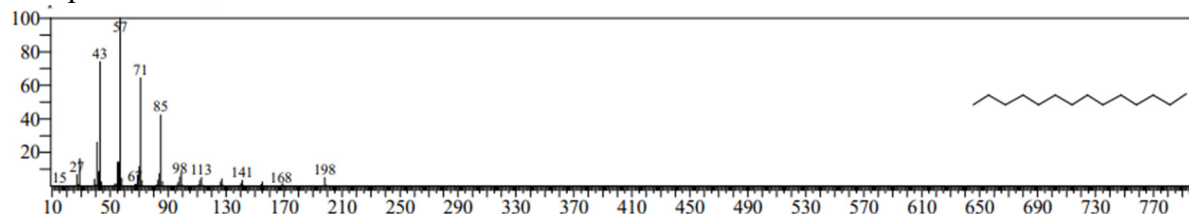


Mass fragmentation pattern and structural elucidations of unique metabolites secreted by *Serendipita indica* under normal growth conditions

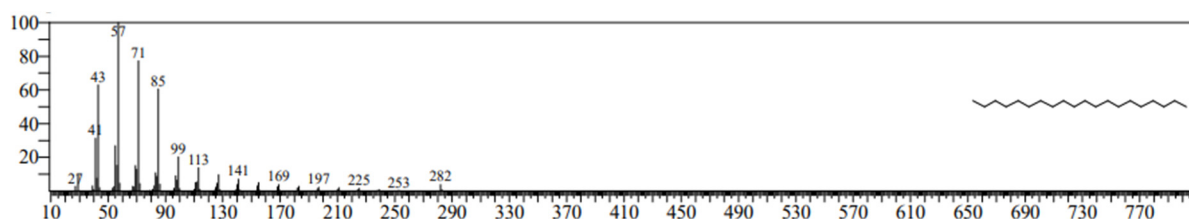
1. Compound name: Dodecane,4,6-dimethyl



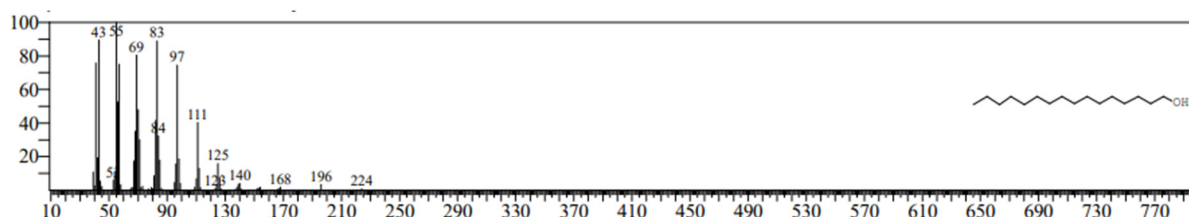
2. Compound name: Tetradecane



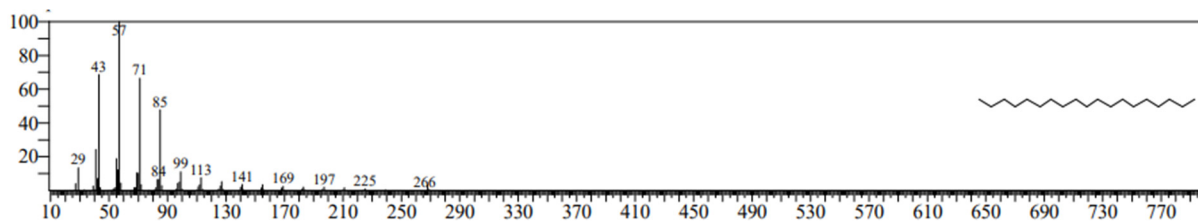
3. Compound name: Eicosane



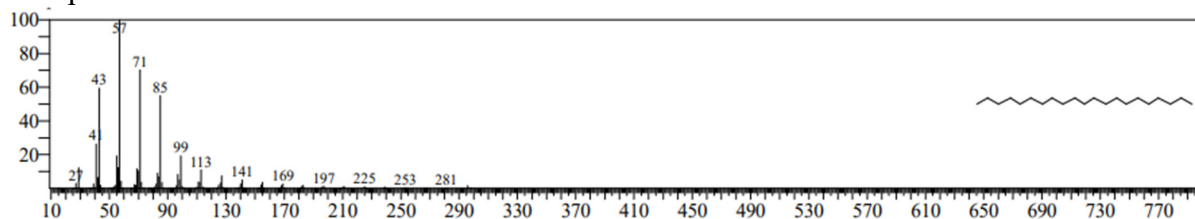
4. Compound name: 1-Hexadecanol



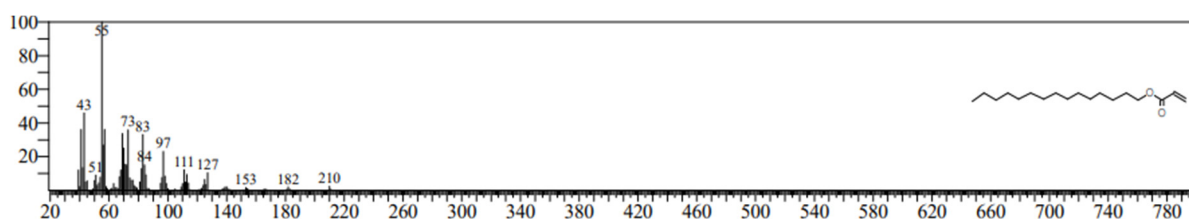
5. Compound name: Nonadecane



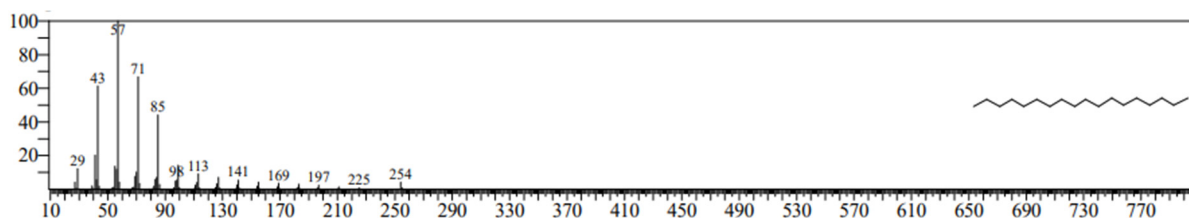
6. Compound name: Heneicosane



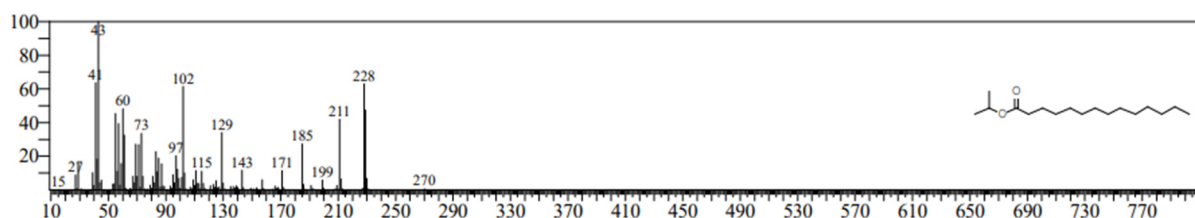
7. Compound name: 2-Propenoic acid, pentadecyl ester



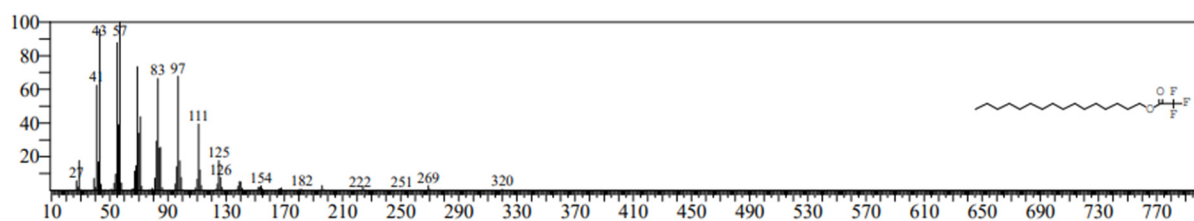
8. Compound name: Octadecane



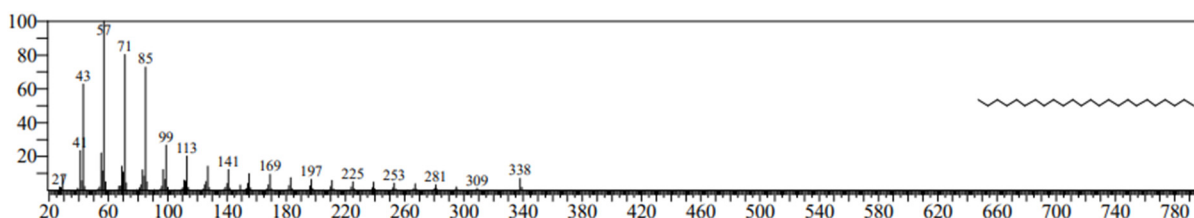
9. Compound name: Isopropyl myristate



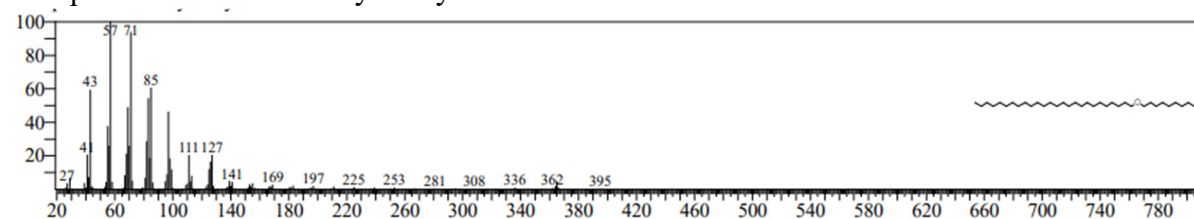
10. Compound name: Trifluoro acetoxy hexadecane



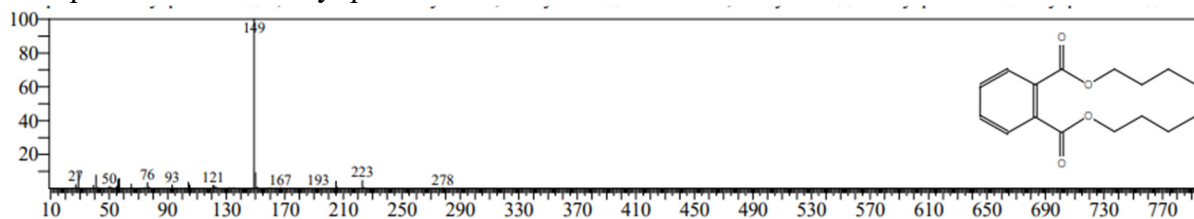
11. Compound name: Tetracosane



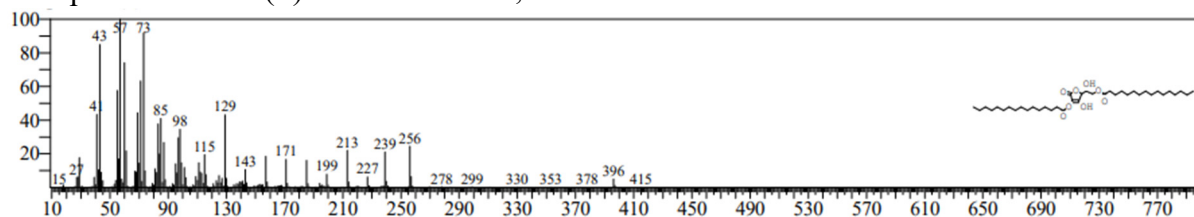
12. Compound name: Hexacosyl nonyl ether



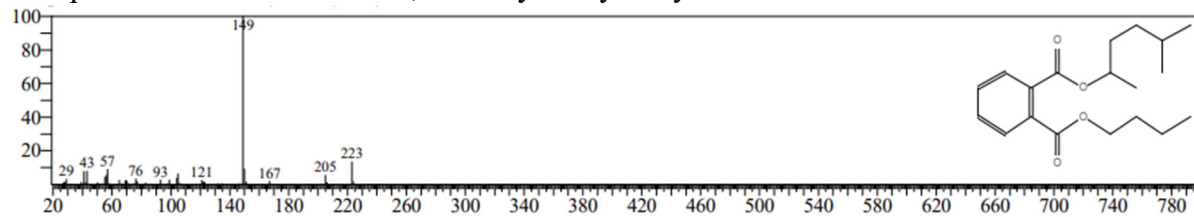
13. Compound name: Dibutyl phthalate



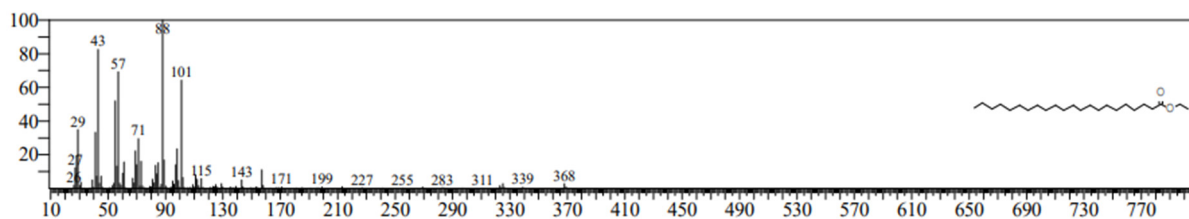
14. Compound name: 1-(+)-Ascorbic acid 2,6-dihexadecanoate



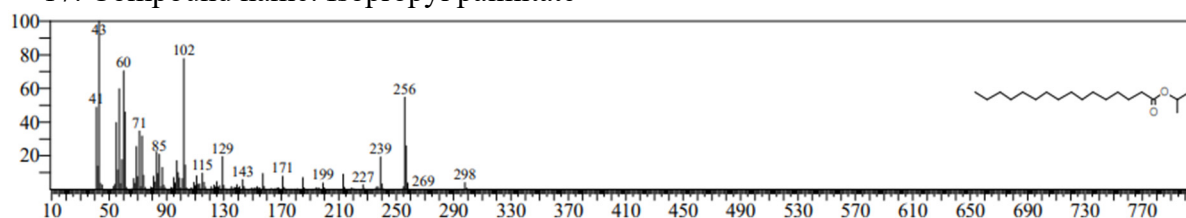
15. Compound name: Phthalic acid, 5-methylhex-yl butyl ester



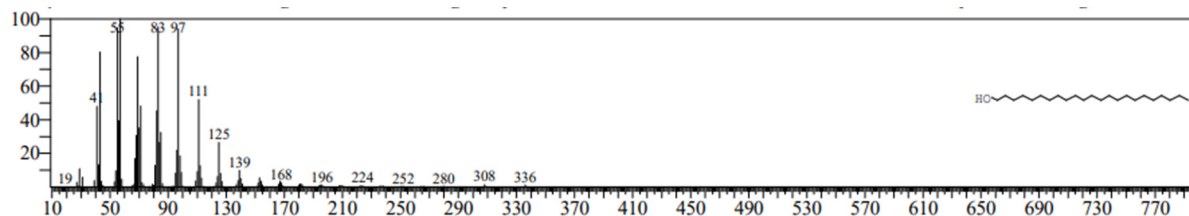
16. Compound name: Docosanoic acid, ethyl ester



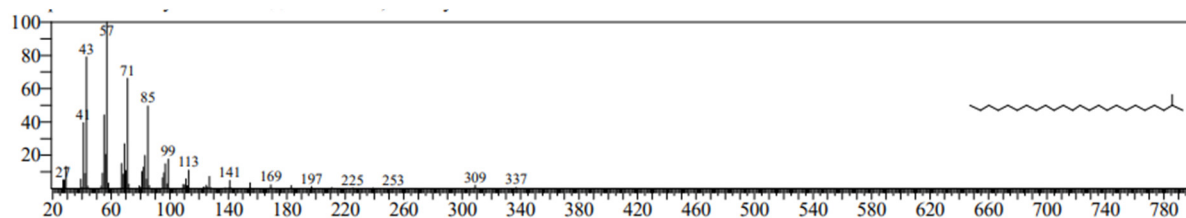
17. Compound name: Isopropyl palmitate



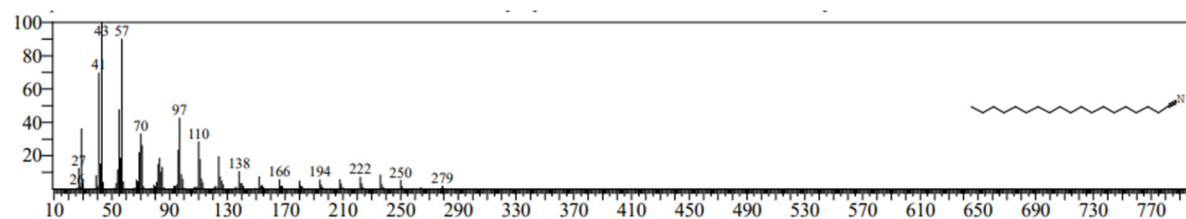
18 Compound name: n-Tetracosanol-1



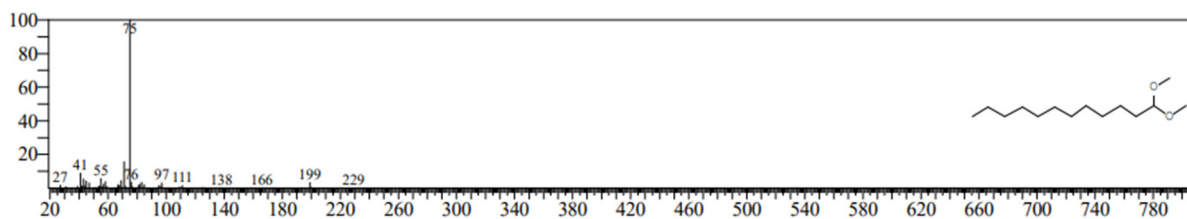
19. Compound name: 2-Methyltetracosane



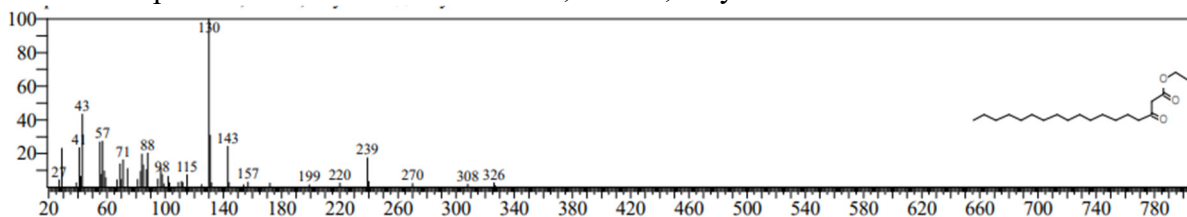
20 Compound name: Nonadecane nitrile



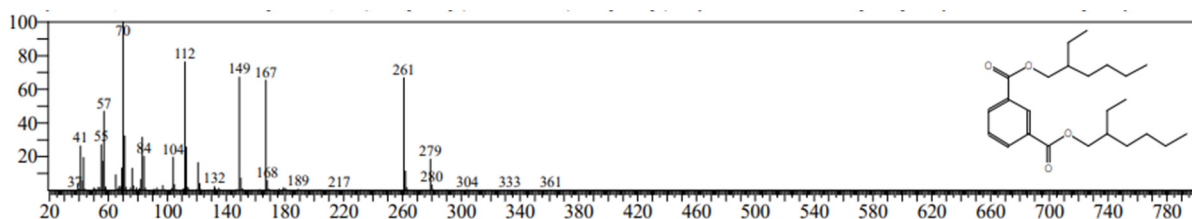
21 Compound name: Dodecane, 1,1-dimethoxy- Lauraldehyde



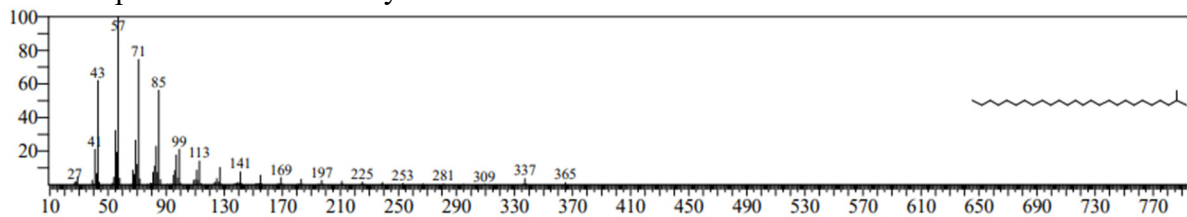
22. Compound name: Octadecanoic acid, 3-oxo-, ethyl ester



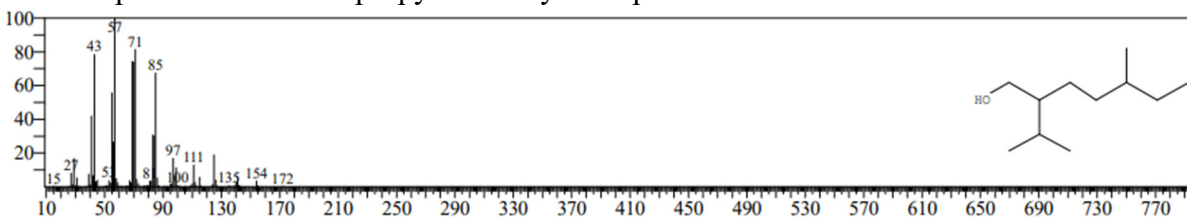
23. Compound name: 1,3-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester



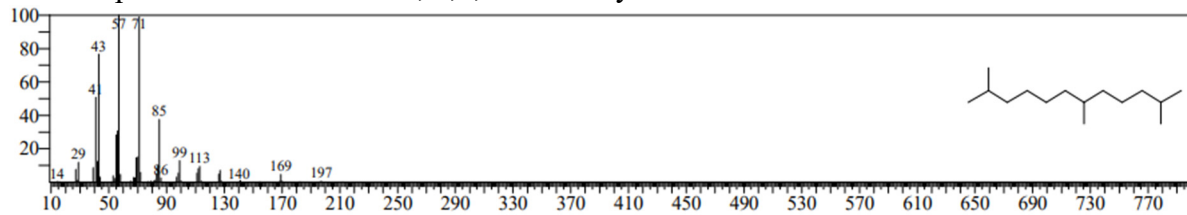
24. Compound name: 2-Methylhexacosane



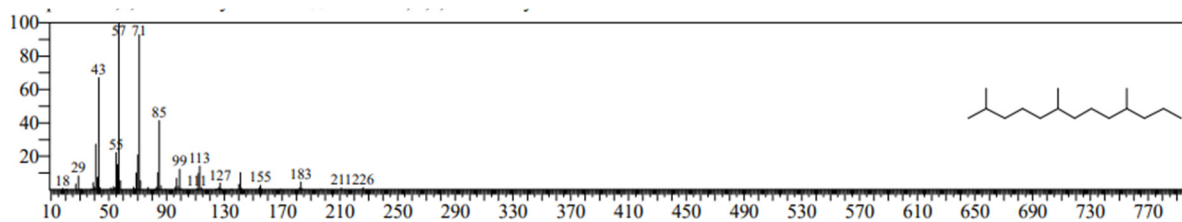
25. Compound name: 2-Isopropyl-5-methyl-1-heptanol



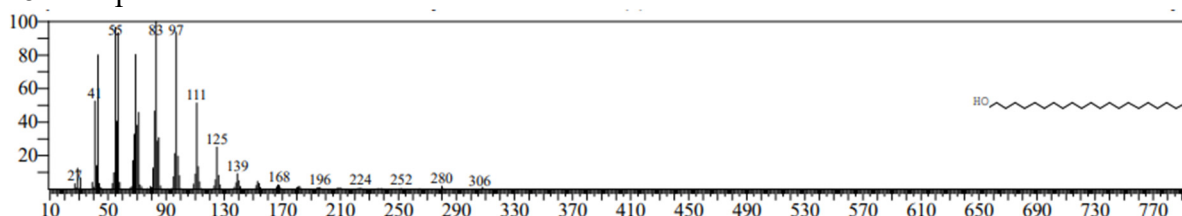
26. Compound name: Dodecane, 2,6,11-trimethyl



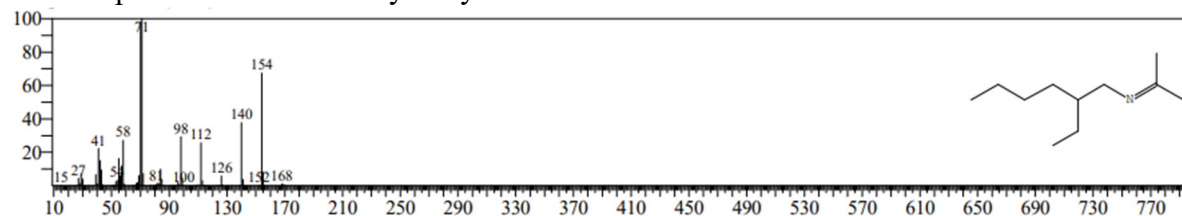
27. Compound name: 2,6,10-Trimethyltridecane



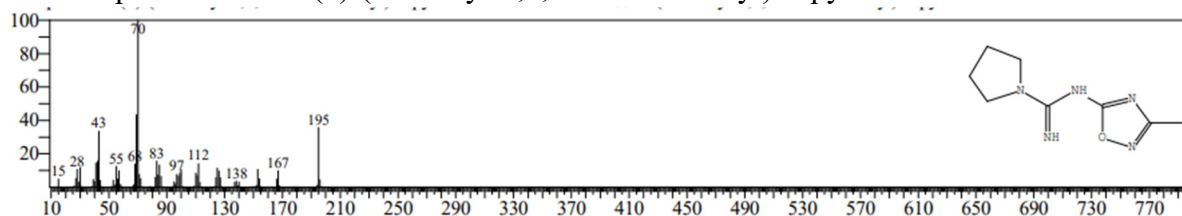
28. Compound name: Behenic alcohol



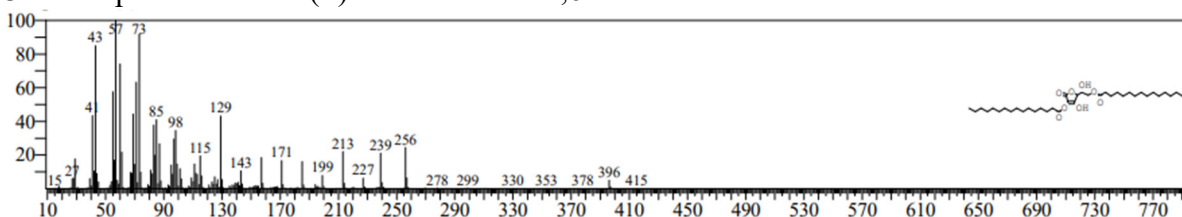
29. Compound name: N-2-ethylhexyl acetone imine



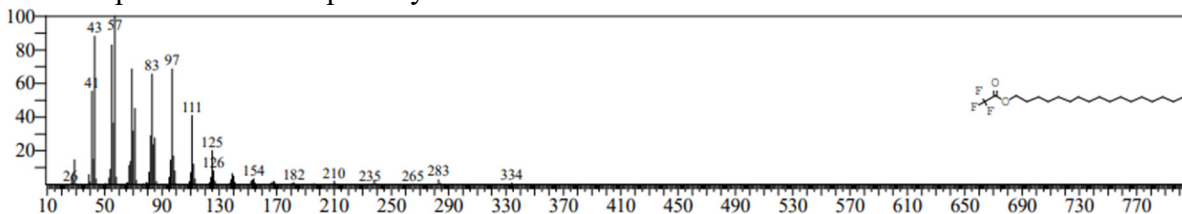
30. Compound name: N(1)-(3-Methyl-1,2,4-oxadiazol-5-yl)-1-pyrrolidinecarboxamide



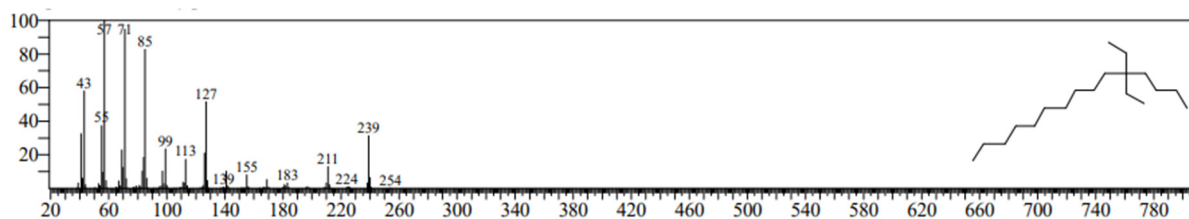
31. Compound name: 1-(+)-Ascorbic acid 2,6-dihexadecanoate



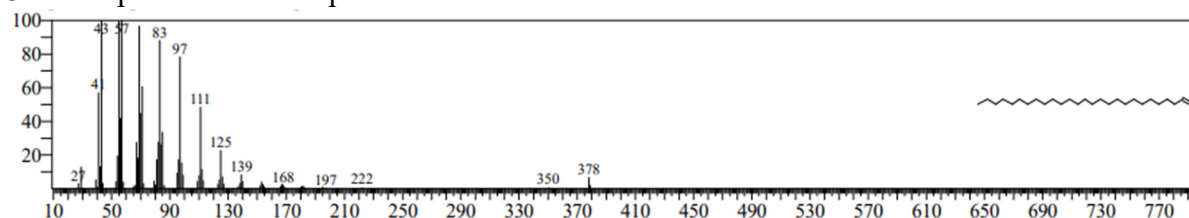
32. Compound name: Heptadecyl trifluoroacetate



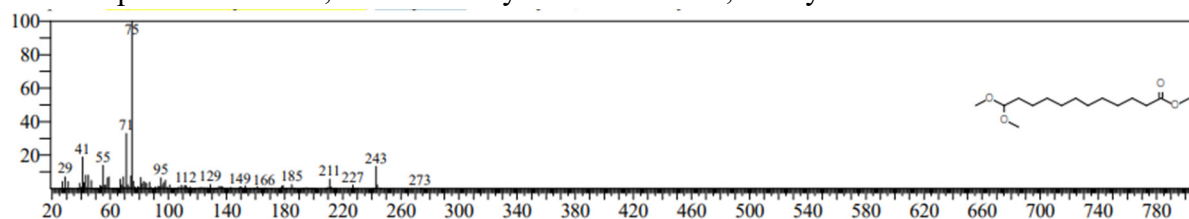
33. Compound name: 5,5-Diethylpentadecane



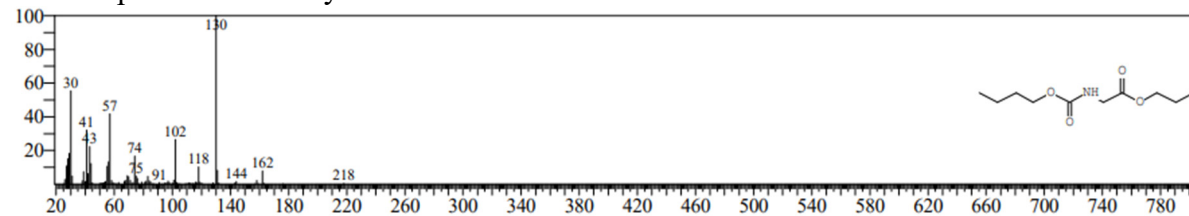
34. Compound name: Heptacos-1-ene



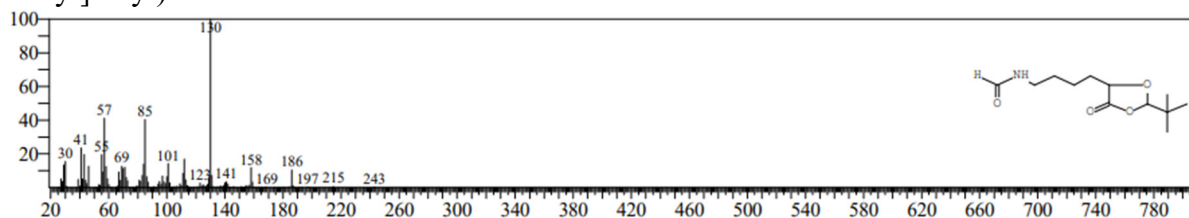
35. Compound name: 12,12-Dimethoxydodecanoic acid, methyl ester



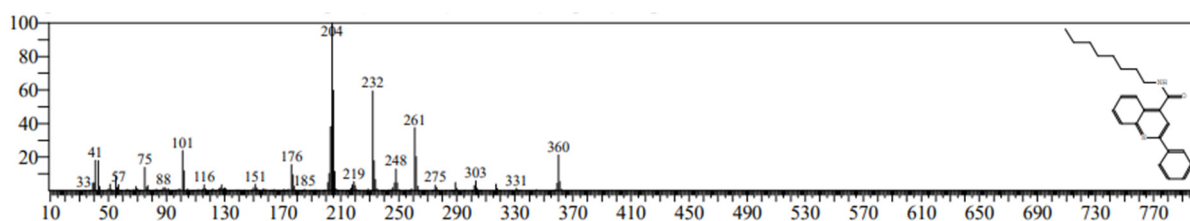
36. Compound name: Glycine



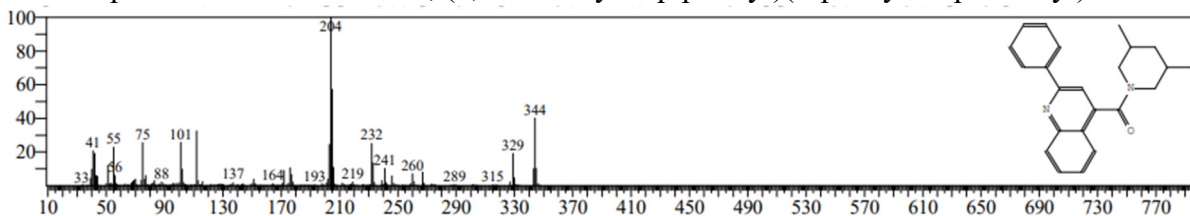
37. Compound name: Formamide, N-(4-[2-(1,1-dimethylethyl)-5-oxo-1,3-dioxolan-4-yl]butyl)



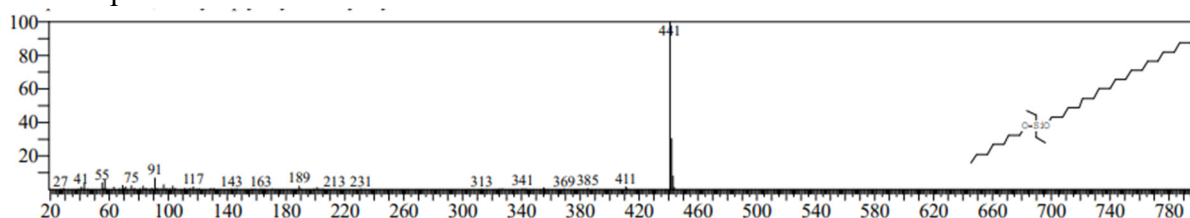
38. Compound name: Quinoline-4-carboxamide 2-phenyl-N-n-octyl



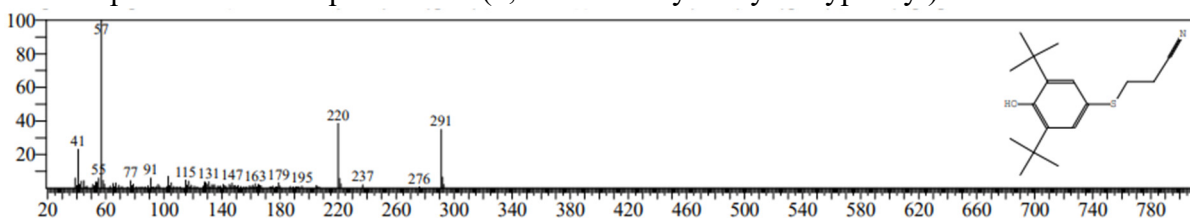
39. Compound name: Methanone, (3,5-dimethyl-1-piperidyl)(2-phenyl-4-quinolinyl)-



40. Compound name: Silane

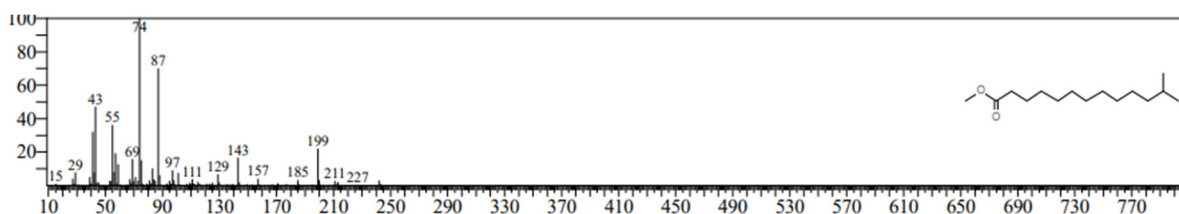


41. Compound name: Propionitrile 3-(3,5-di-tert-butyl-4-hydroxyphenyl)thio-

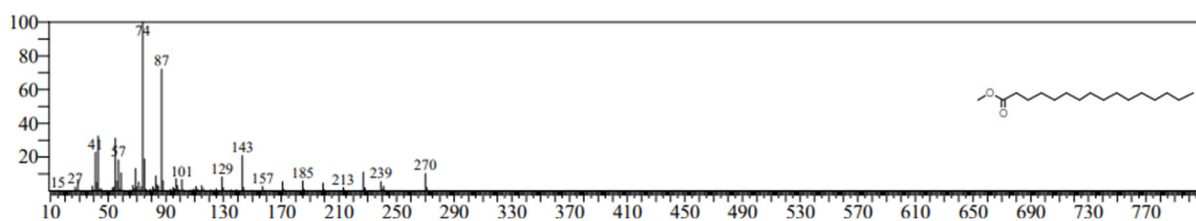


Mass fragmentation pattern and structural elucidations of unique metabolites secreted by *Serendipita indica* in presence of arsenic stress

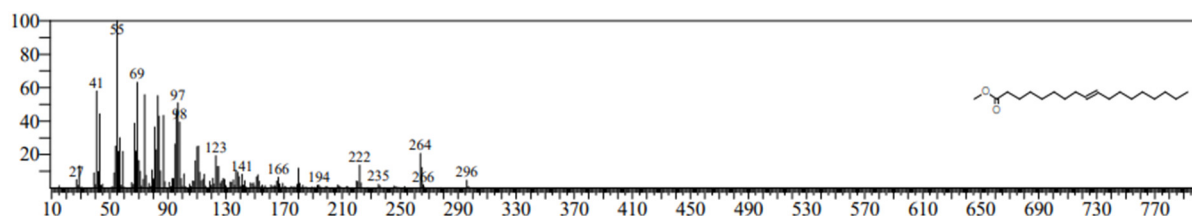
1. Compound name: Tridecanoic acid, 12-methyl-, methyl ester



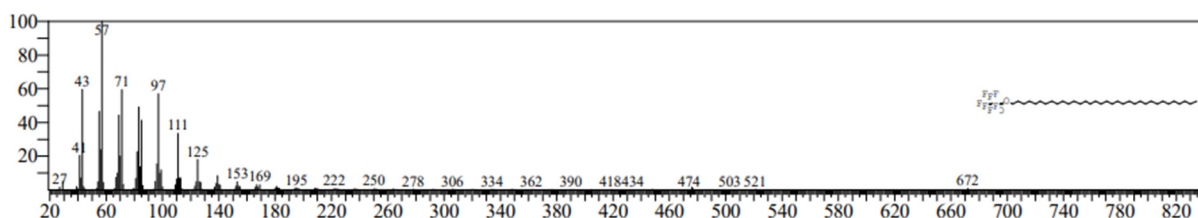
2. Compound name: n-Hexadecanoic acid



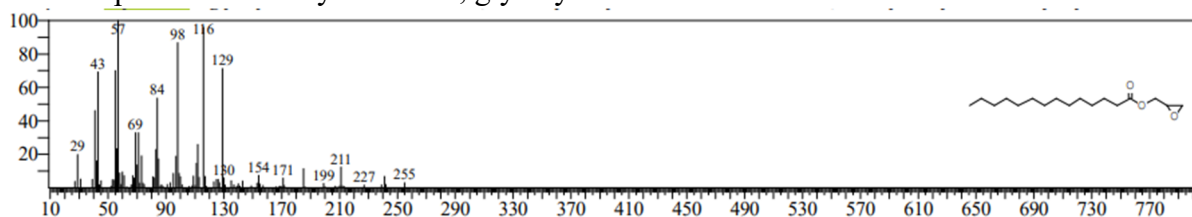
3. Compound name: 9-Octadecenoic acid, methyl ester, (E)- Elaidic acid



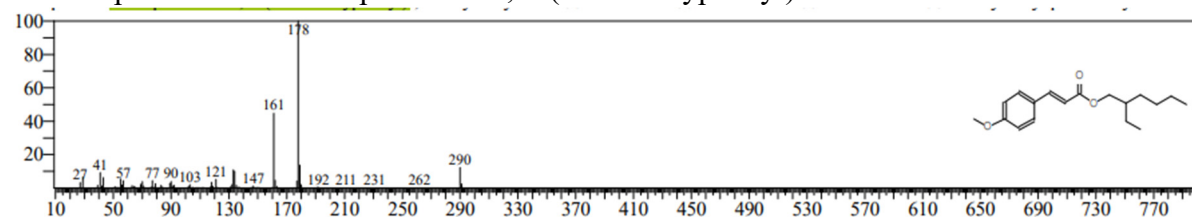
4. Compound name: Tetratriacontyl heptafluorobutyrate



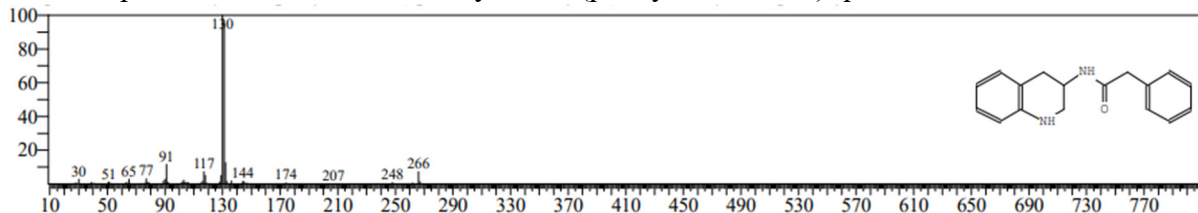
5. Compound name: Myristic acid, glycidyl ester Tetradecanoic acid



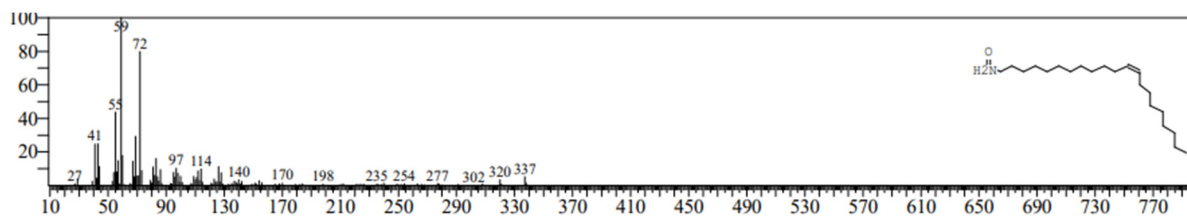
6. Compound name: 2-Propenoic acid, 3-(4-methoxyphenyl)



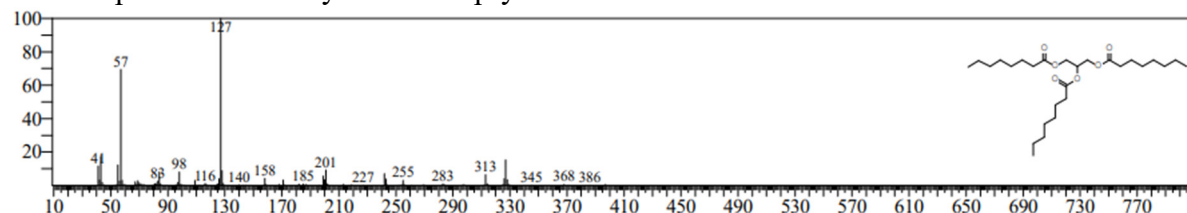
7. Compound name: 1,2,3,4-Tetrahydro-3- (phenyl acetamido) quinoline



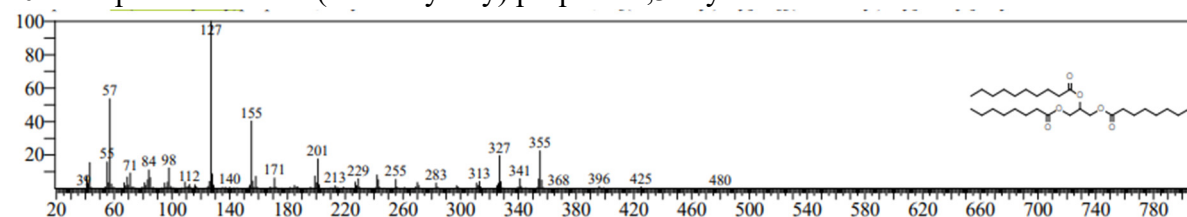
8. Compound name: 13-Docosenamide, (Z)- Erucylamide



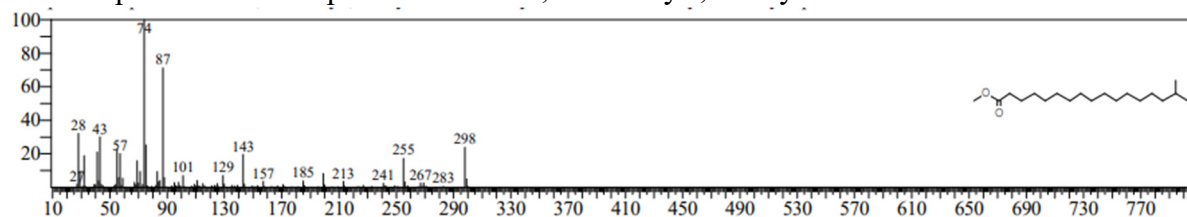
9. Compound name: Glycerol tri caprylate



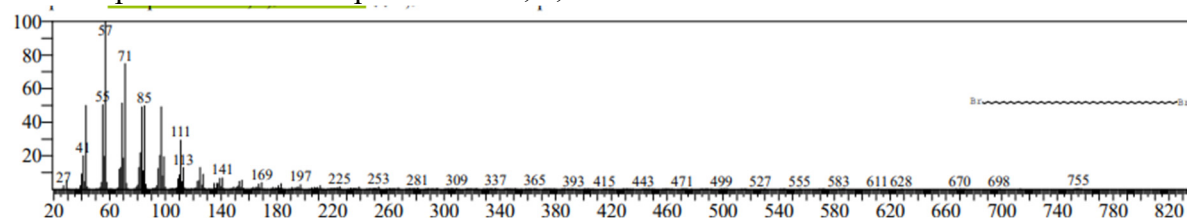
10. Compound name: 2-(Decanoyloxy) propane-1,3-diyl dioctanoate



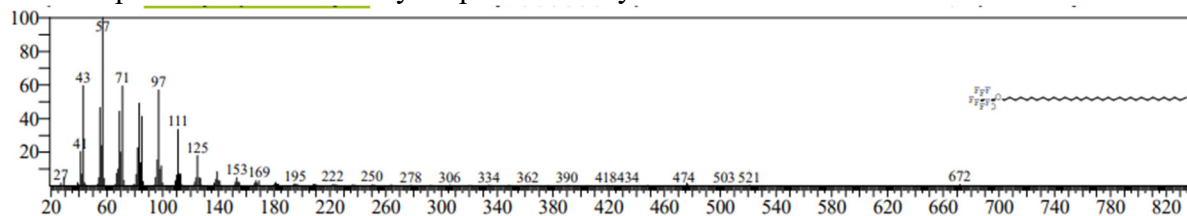
11. Compound name: Heptadecanoic acid, 16-methyl-, methyl ester



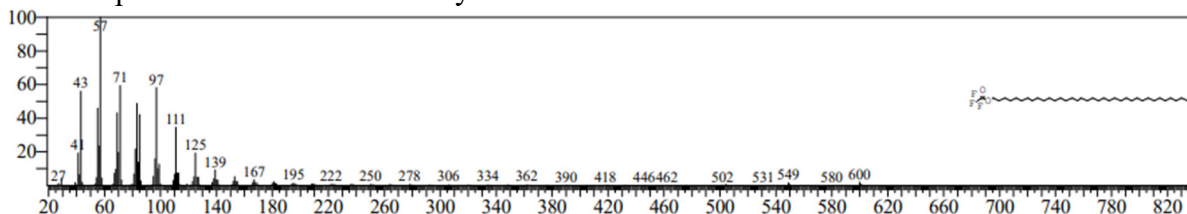
12. Compound name: Tetrapentacontane, 1,54-dibromo-



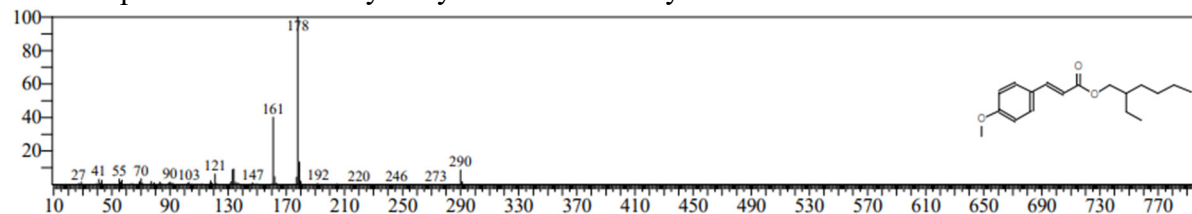
13. Compound name: Triacontyl heptafluorobutyrate



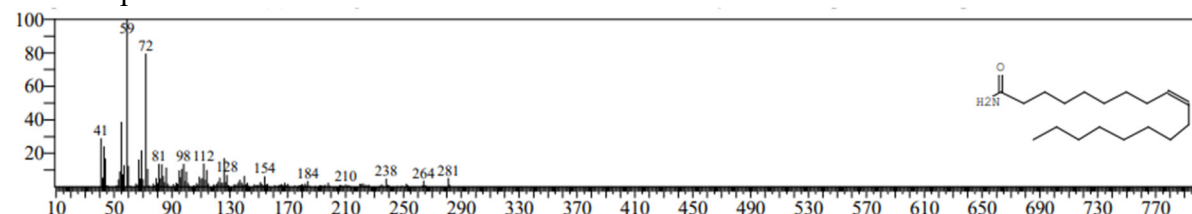
14. Compound name: Hexatriacontyl trifluoroacetate



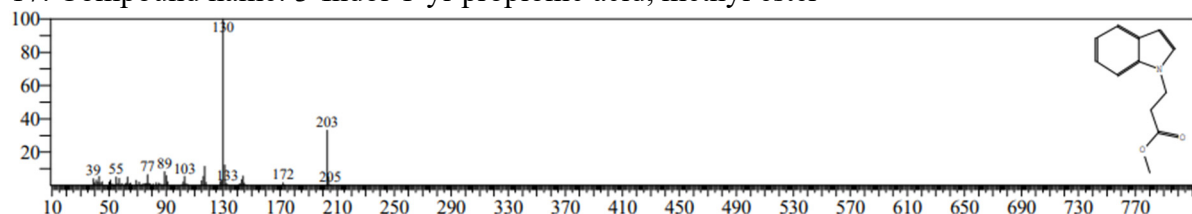
15. Compound name: 2-Ethylhexyl trans-4-methoxycinnamate



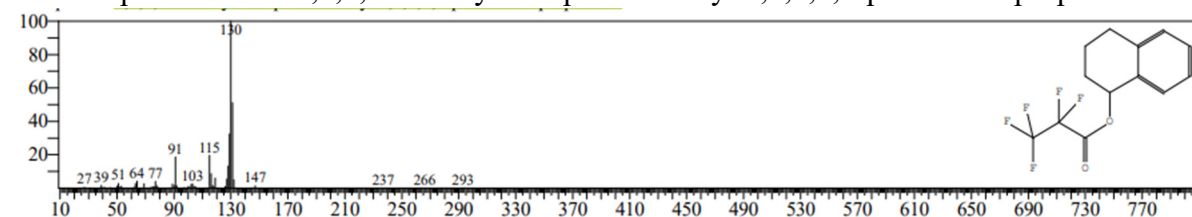
16. Compound name: 9-Octadecenamide



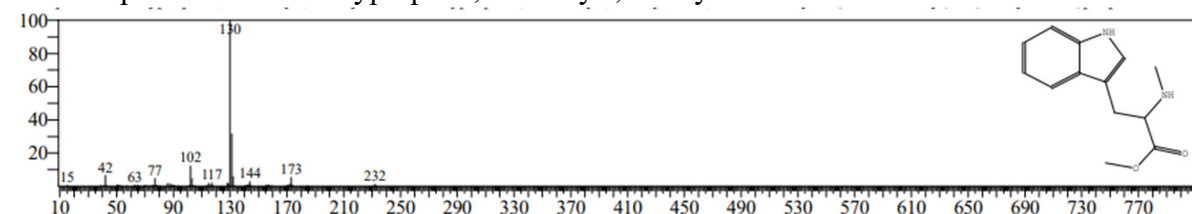
17. Compound name: 3-Indol-1-yl-propionic acid, methyl ester



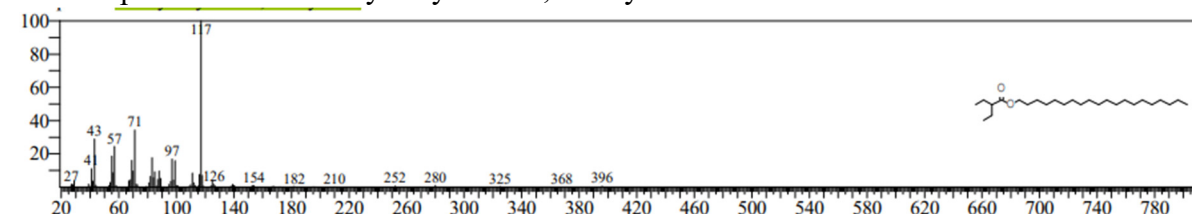
18. Compound name: 1,2,3,4-Tetrahydronaphthalen-1-yl 2,2,3,3,3-pentafluoropropanoate



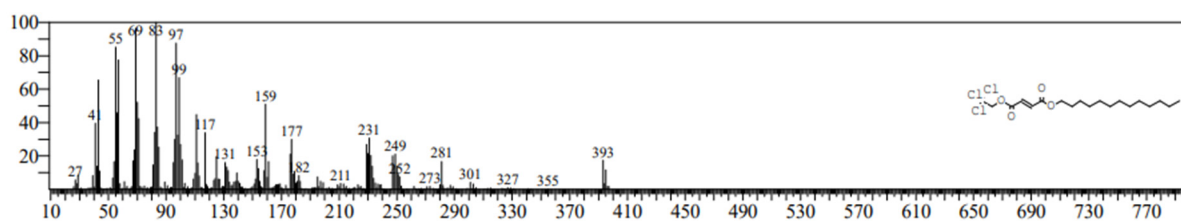
19. Compound name: L-Tryptophan, N-methyl-, methyl ester



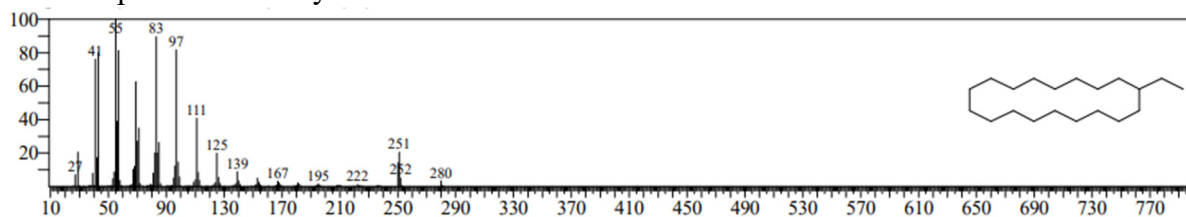
20. Compound name: 2-Ethylbutyric acid, eicosyl ester



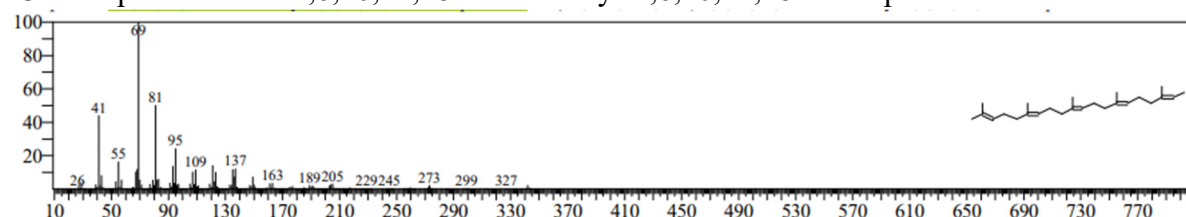
21. Compound name: Fumaric acid, 2,2,2-trichloroethyl tridecyl ester



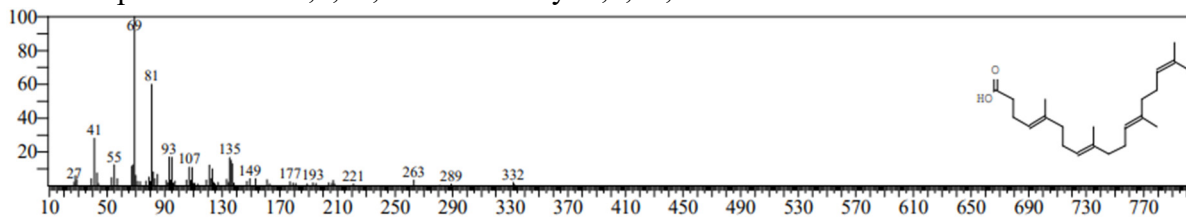
22. Compound name: Cyclooctadecane



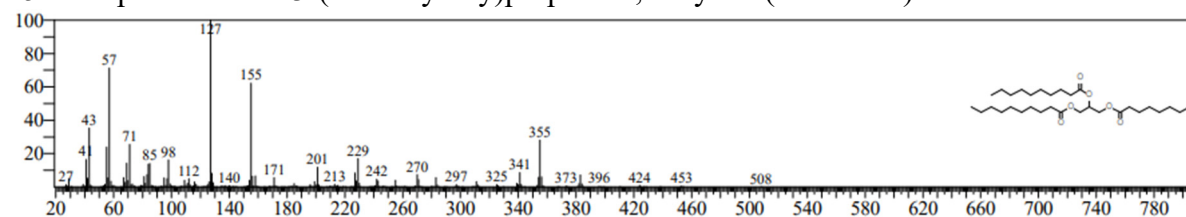
23. Compound name: 2,6,10,14,18-Pentamethyl-2,6,10,14,18-eicosapentaene



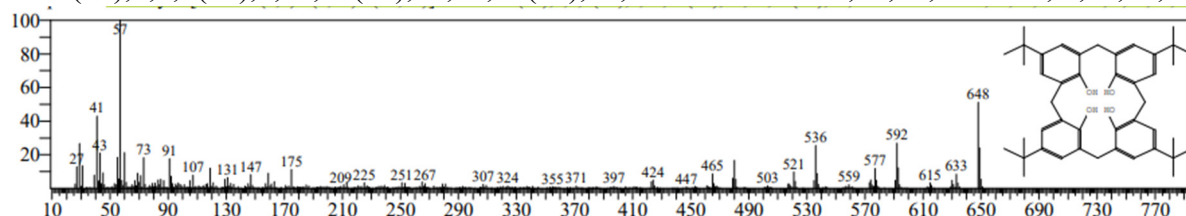
24. Compound name: 5,9,13,17-Tetramethyl 4,8,12,16-octadecatetraenoic acid



25. Compound name: 3-(Octanoyloxy)propane-1,2-diyl bis(decanoate)



26. Compound name: Pentacyclo[19.3.1.1(3,7).1(9,13).1(15,19)]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, 5,11,17,23-

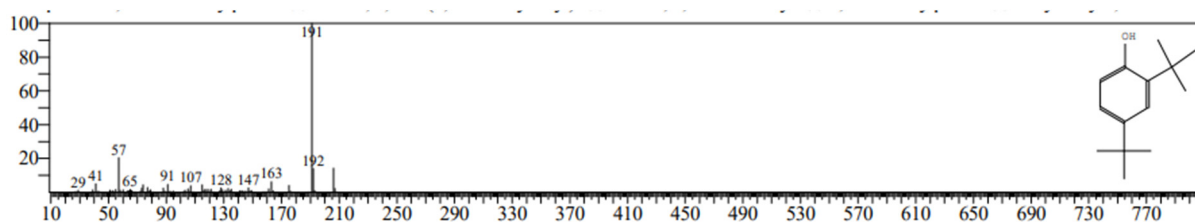


Supplementary Material S2

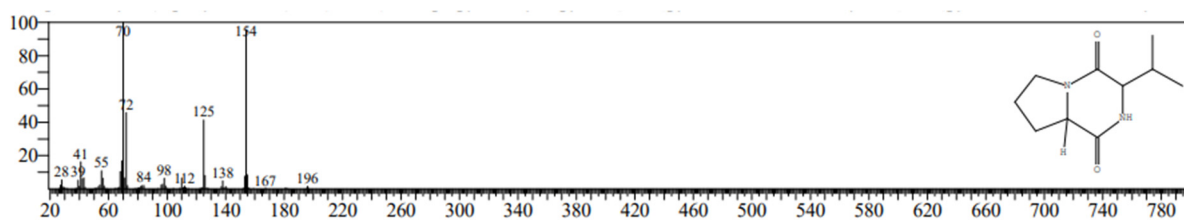
Mass fragmentation patterns and structural elucidations of common secondary metabolites secreted by *Serendipita indica* and *Zhihengliuella* sp. ISTPL4 under normal growth conditions and in the presence of arsenic stress

A total of 67 metabolites were produced by a combination of *S. indica* and *Z. sp.* ISTP4 under normal conditions and 37 metabolites were produced in As stress (out of which 16 metabolites were common)

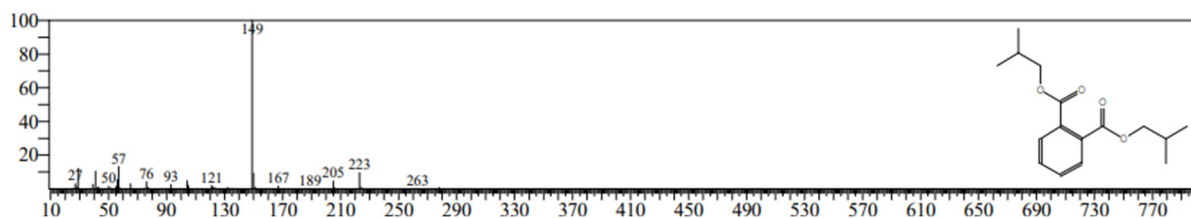
1. Compound name: 2,4-Di-tert-butyl-phenol) phosphate



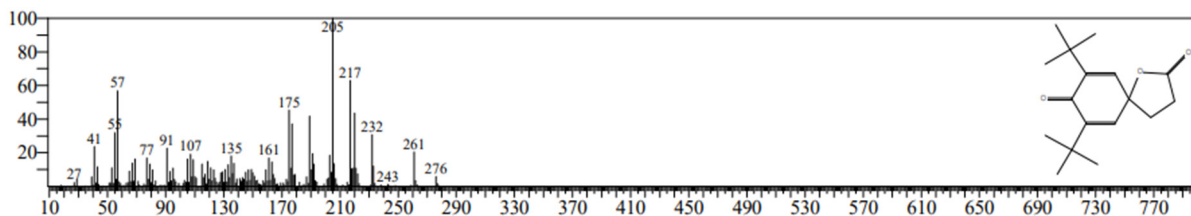
2. Compound name: Cyclo(L-prolyl-L-valine)



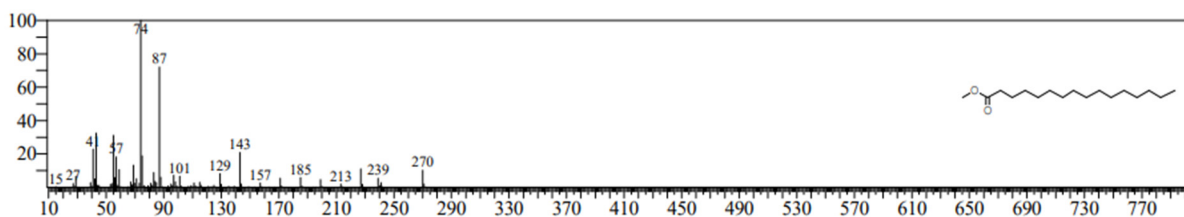
3. Compound name: 1,2-Benzenedicarboxylic acid, bis (2-methyl propyl) ester



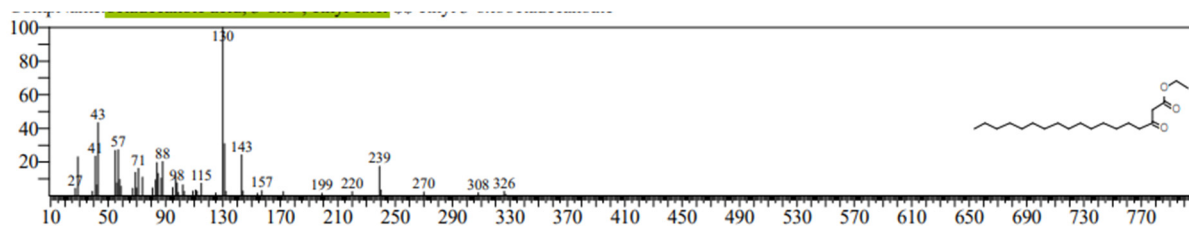
4. Compound name: 7,9-Di-tert-butyl-1-oxaspiro (4,5) deca-a-6,9-diene-2,8-dione



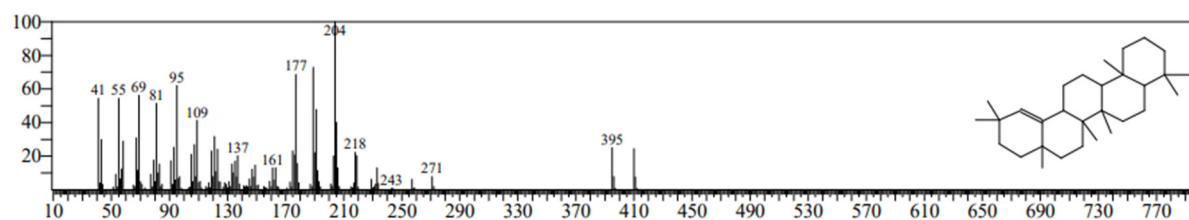
5. Compound name: Hexadecenoic acid, methyl ester



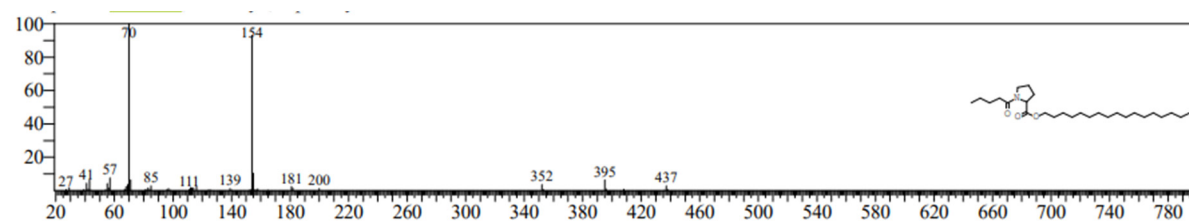
6. Compound name: octadecanoic acid, 3-oxo-, ethyl ester



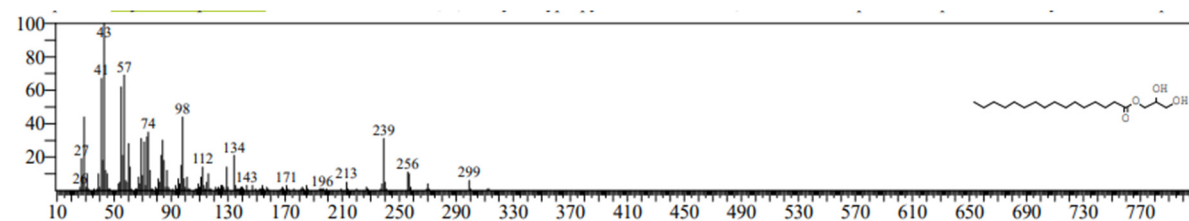
7. Compound name: Olean-18-ene



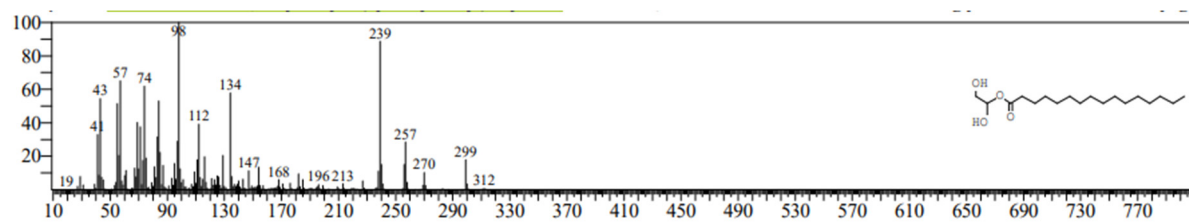
8. Compound name: L-Proline



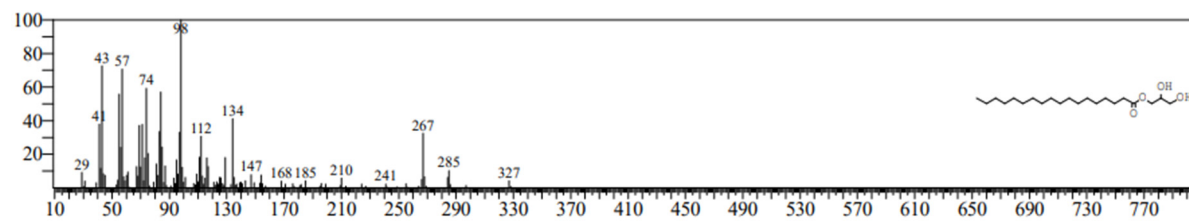
9. Compound name: Glycerol 1-palmitate



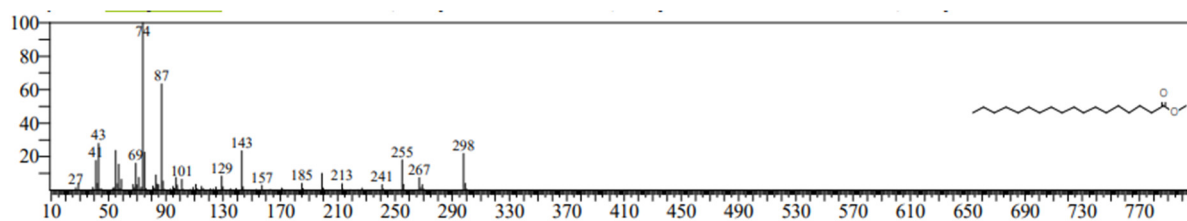
10. Compound name: Hexadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester



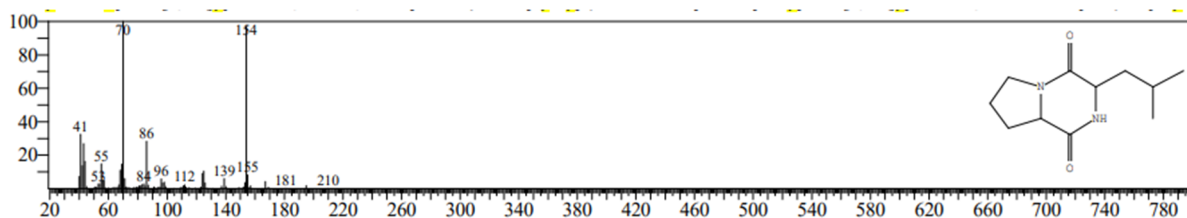
11. Compound name: Octadecanoic acid, 2,3-dihydroxypropyl ester



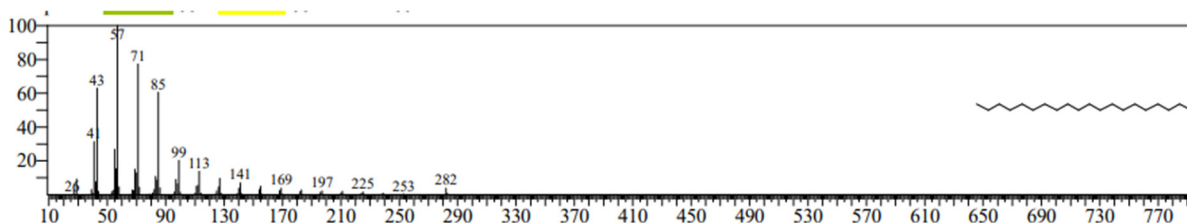
12. Compound name: Methyl stearate



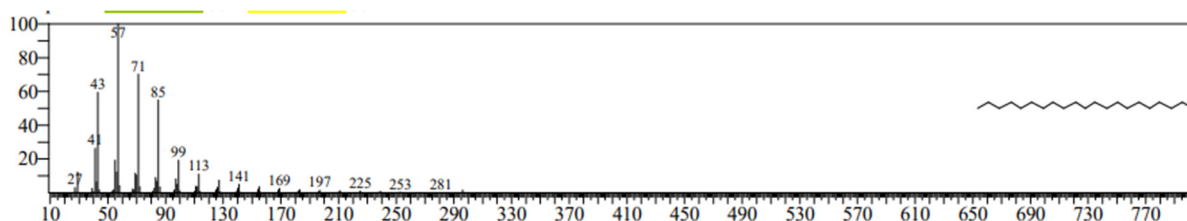
13. Compound name: Pyrrole[1,2-a] pyrazine-1,4-dione, hexahydro-3-(2-methylpropyl)



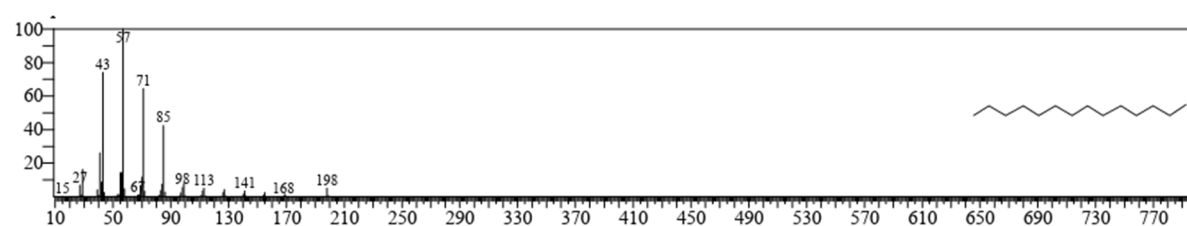
14. Compound name: Eicosane



15. Compound name: Heneicosane

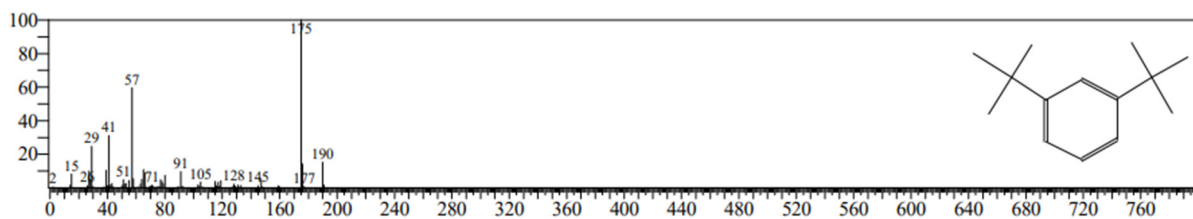


16. Compound name: Tetradecane

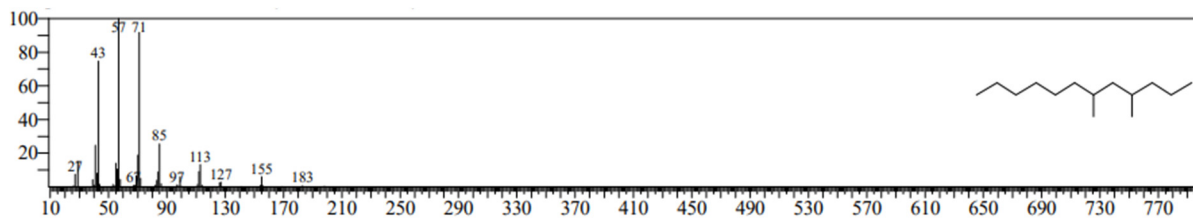


Mass fragmentation patterns and structural elucidations of unique secondary metabolites secreted by *Serendipita indica* and *Zhihengliuella* sp. ISTPL4 under normal growth conditions

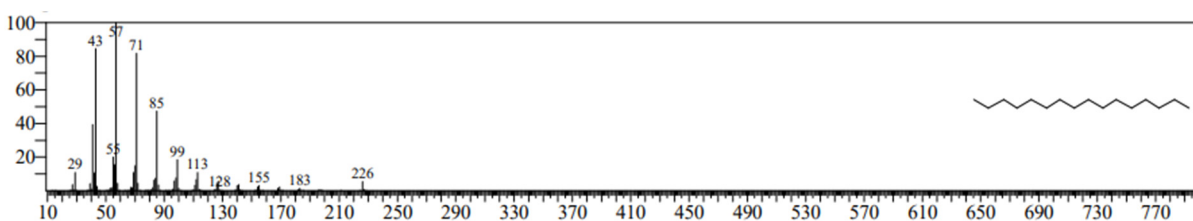
1. Compound name: Benzene, 1,3-bis(1,1-dimethylethyl)-



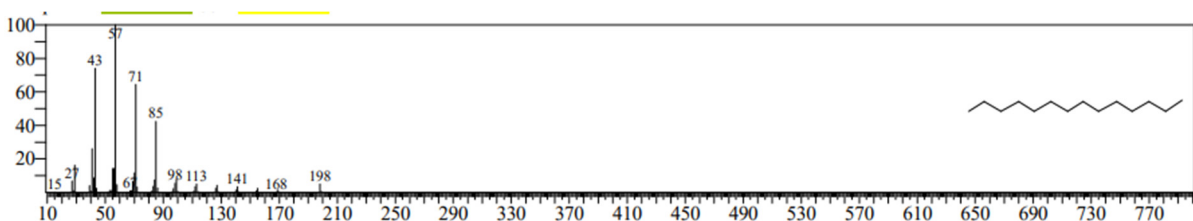
2. Compound name: Dodecane,4,6-dimethyl



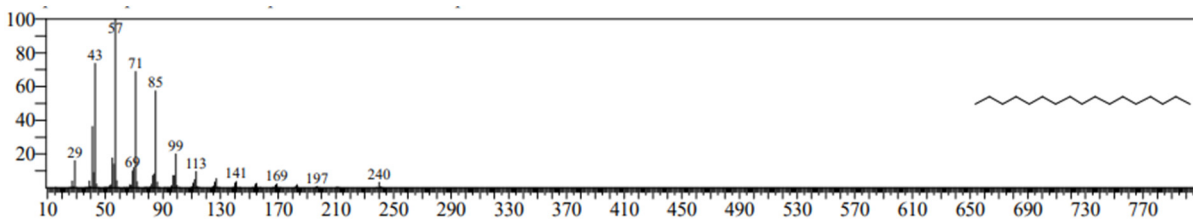
3. Compound name: Hexadecane



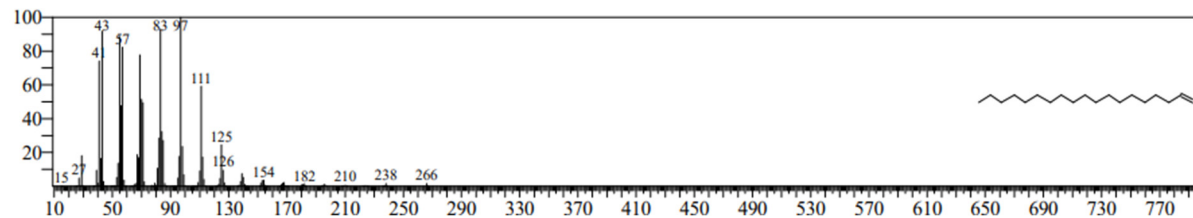
4. Compound name: Tetradecane



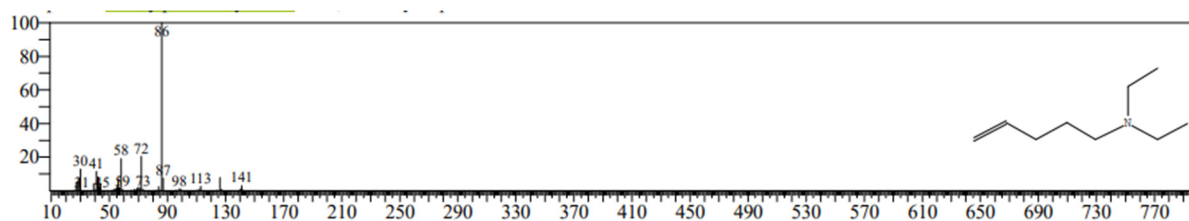
5. Compound name: Heptadecane



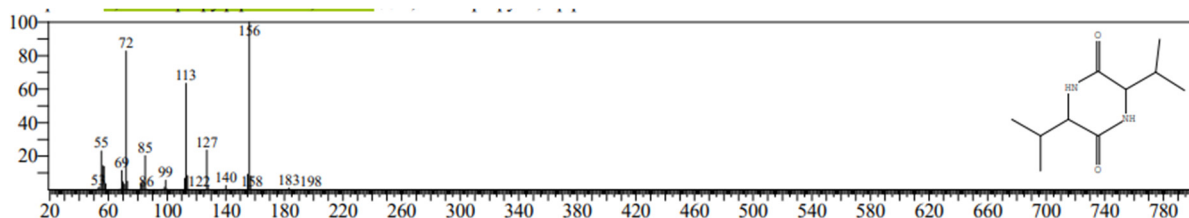
6. Compound name: I-Nonadecene



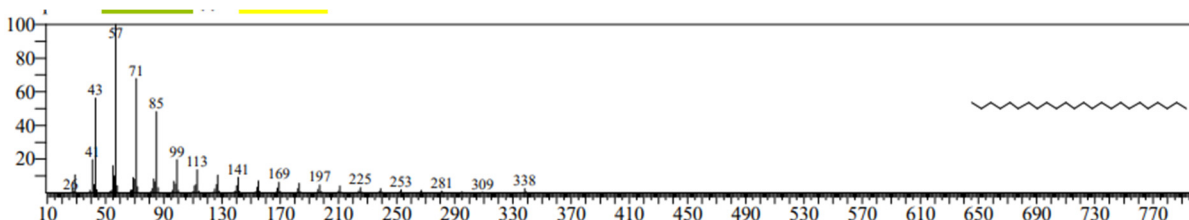
7. Compound name: Diethylpent-4-enylamine



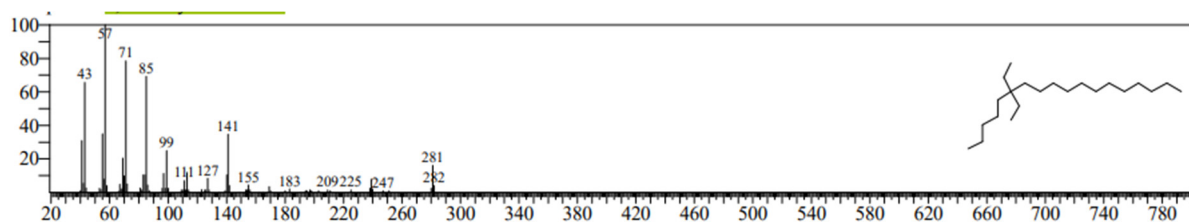
8. Compound name: 3,6-Diisopropylpiperazin-2,5-dione



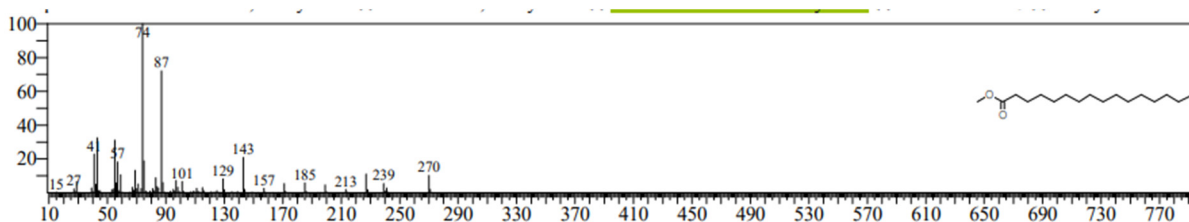
9. Compound name: Tetracosane



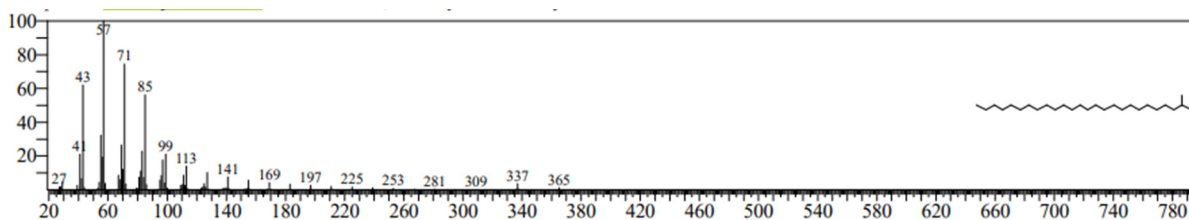
10. Compound name: 6,6-Diethyloctadecane



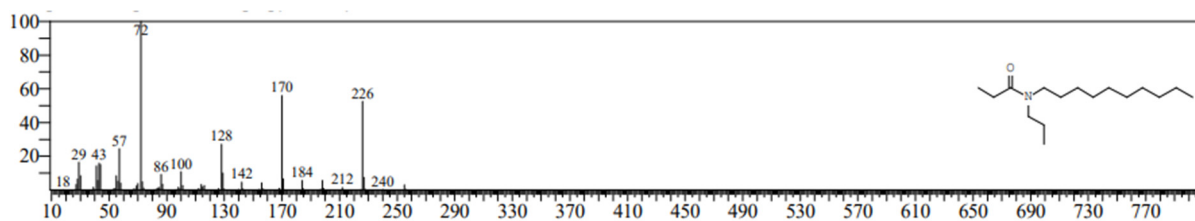
11. Compound name: n-Hexadecanoic acid methyl ester



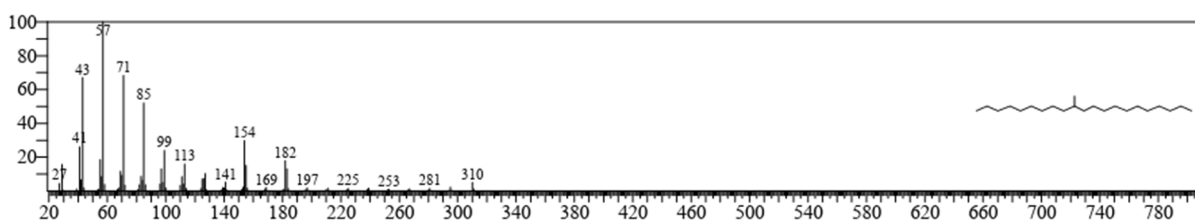
12. Compound name: 2-Methylhexacosane



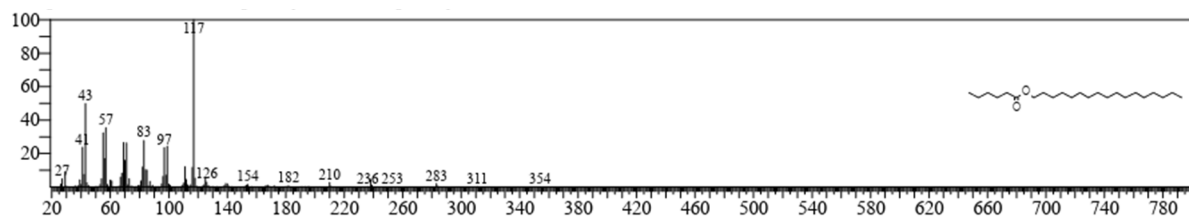
13. Compound name: Propionamide, N-propyl-N-decyl



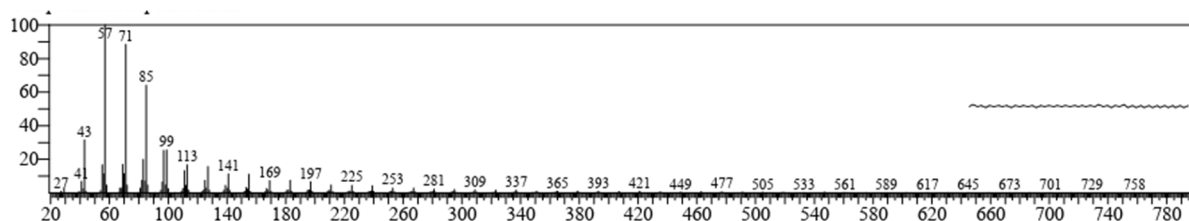
14. Compound name: Heneicosane, 10-methyl-



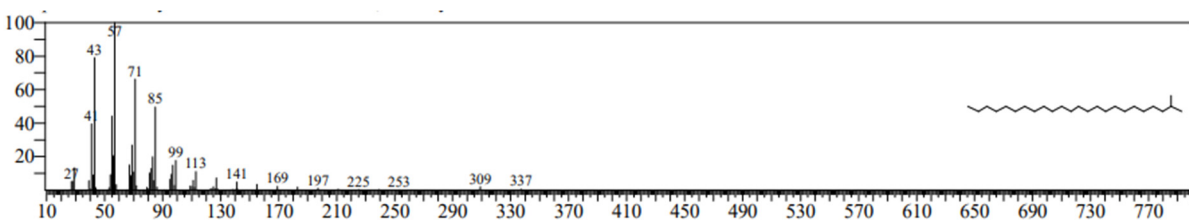
15. Compound name: Hexanoic acid, heptadecyl ester



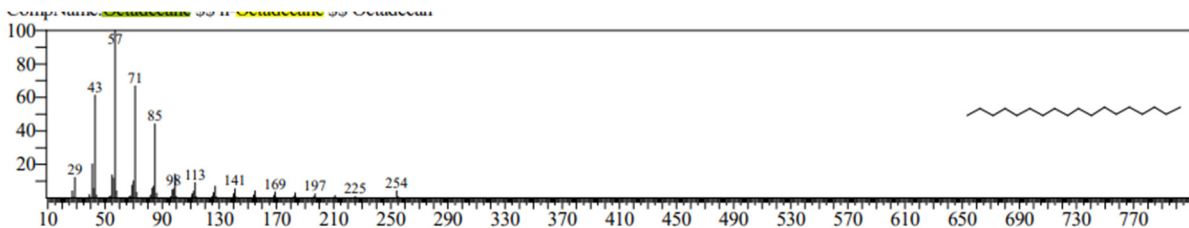
16. Compound name: Tetrapentacontane



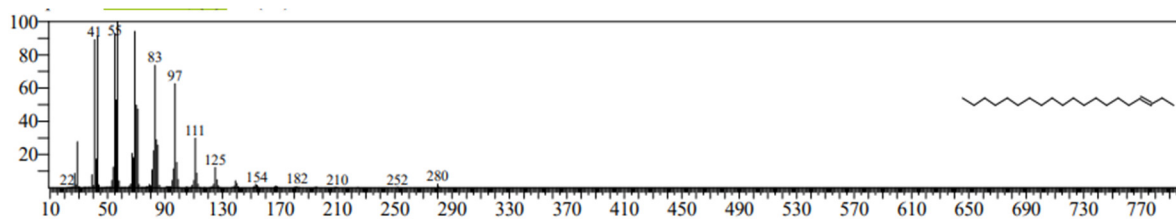
17. Compound name: 2-Methyltetracosane



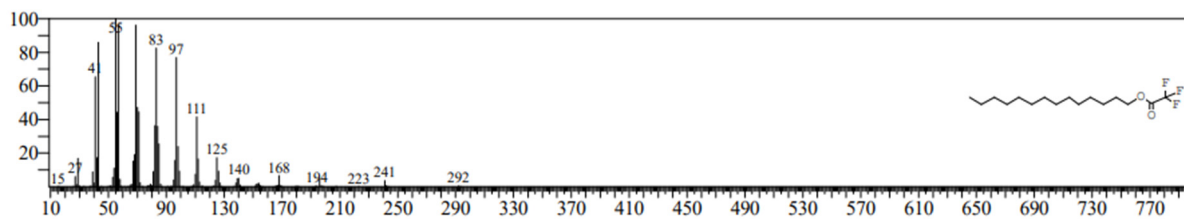
18. Compound name: Octadecane



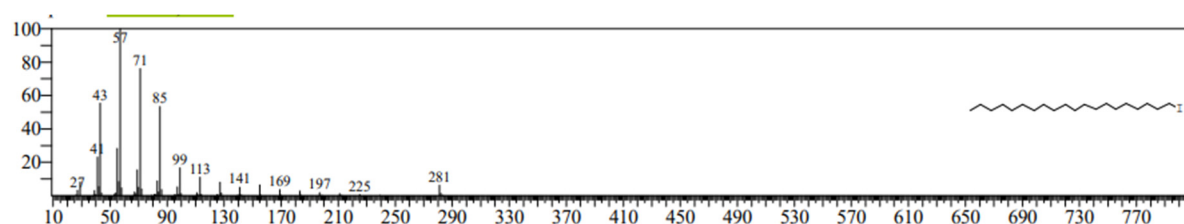
19. Compound name: 3-Eicosene, (E)-



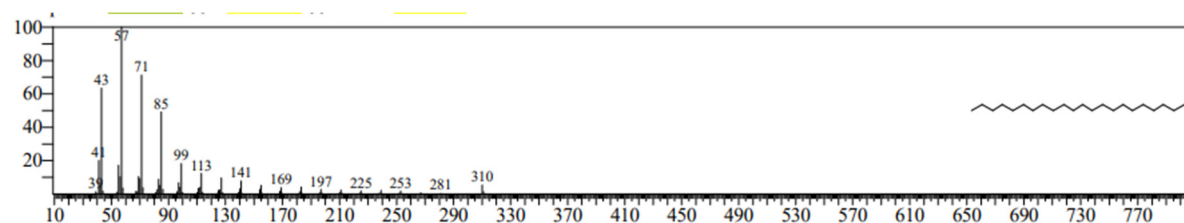
20. Compound name: Tetradecyl trifluoroacetate



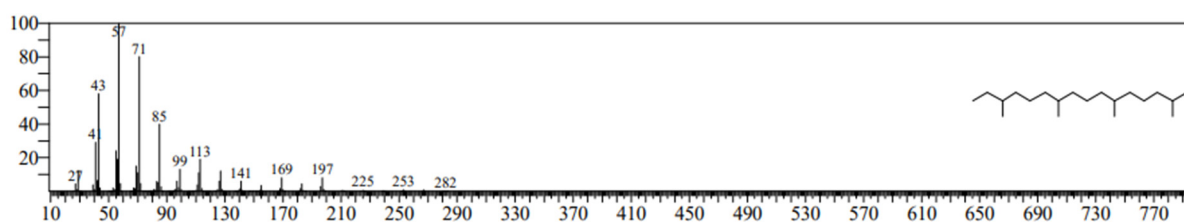
21. Compound name: Eicosane, 1-iodo



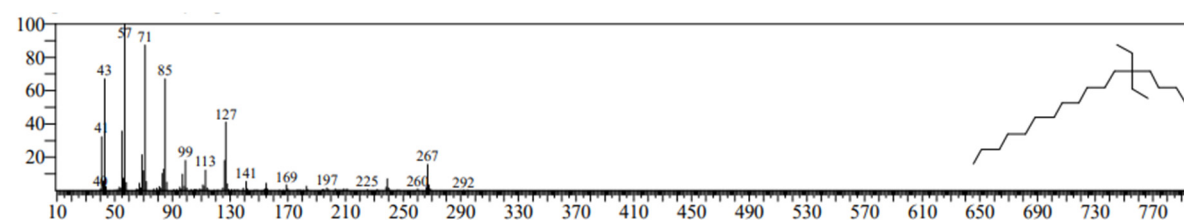
22. Compound name: Docosane



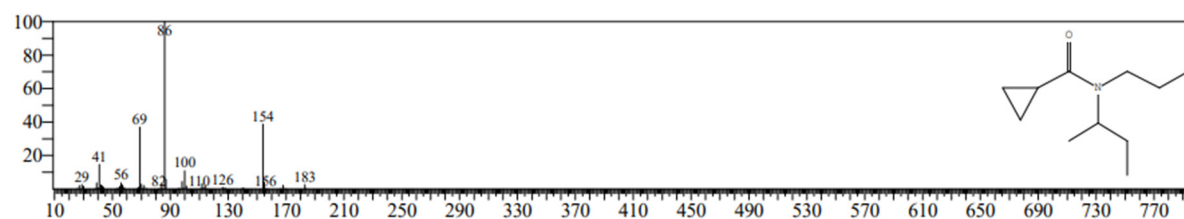
23. Compound name: Hexadecane, 2,6,10,14-tetramethyl



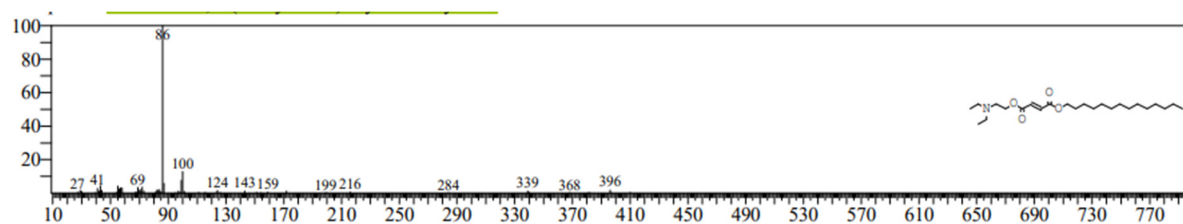
24. Compound name: 5,5-Diethylheptadecane



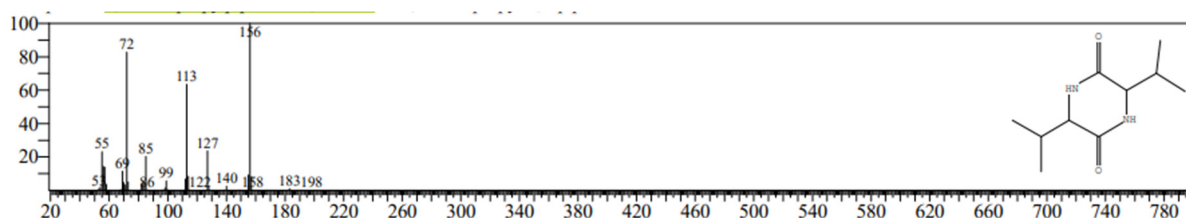
25. Compound name: Cyclopropanecarboxamide, N-(2-butyl)-N-propyl



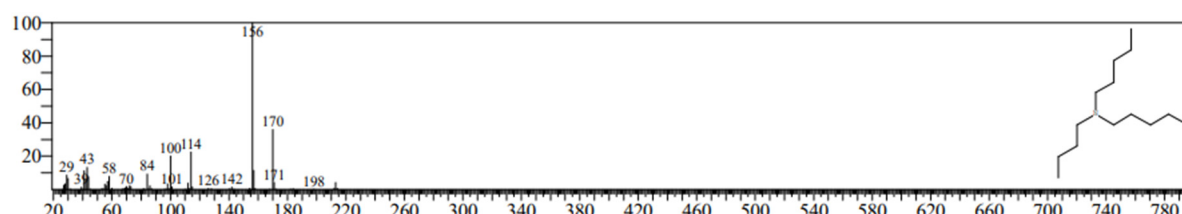
26. Compound name: Fumaric acid, 2-(diethylamino)ethyl tetradecyl ester



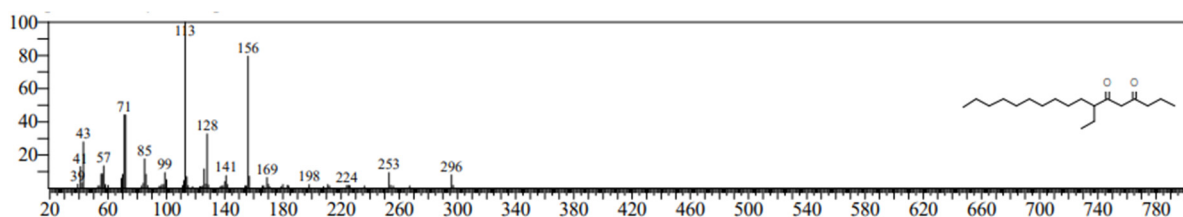
27. Compound name: 3,6-Diisopropylpiperazin-2,5-dione



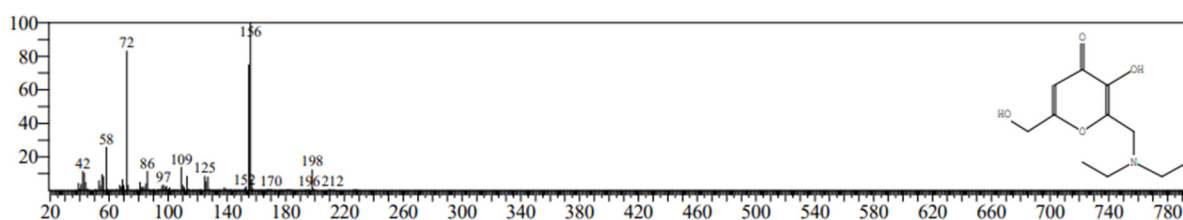
28. Compound name: Butylamine, N,N-dipentyl



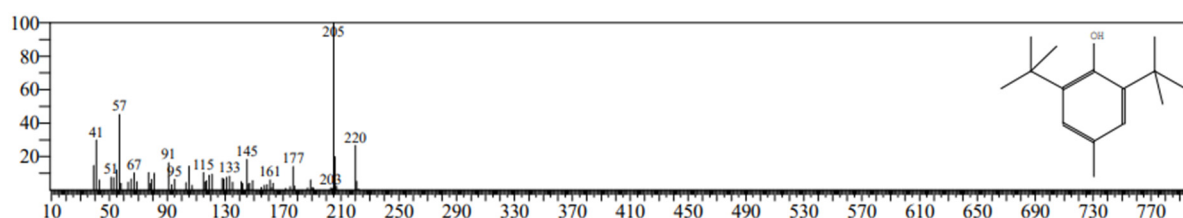
29. Compound name: 7-Ethyl-4,6-heptadecandione



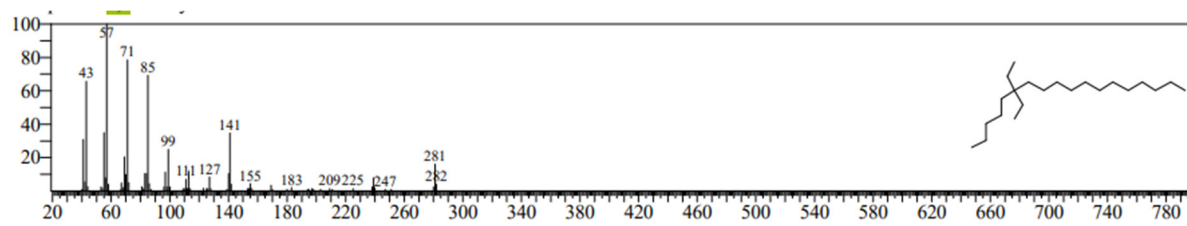
30. Compound name: 2-Diethylaminomethyl-3-hydroxy-6-hydroxymethyl-pyran-4-one



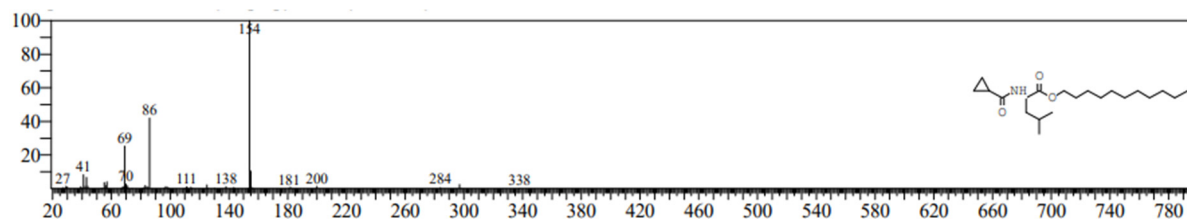
31. Compound name: Butylated Hydroxytoluene



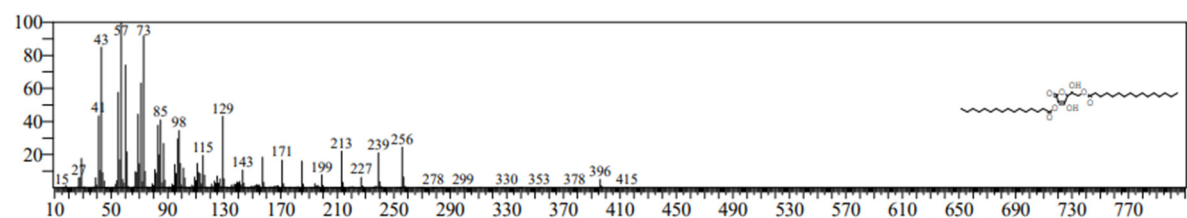
32. Common name: 6,6 Diethyloctadecane



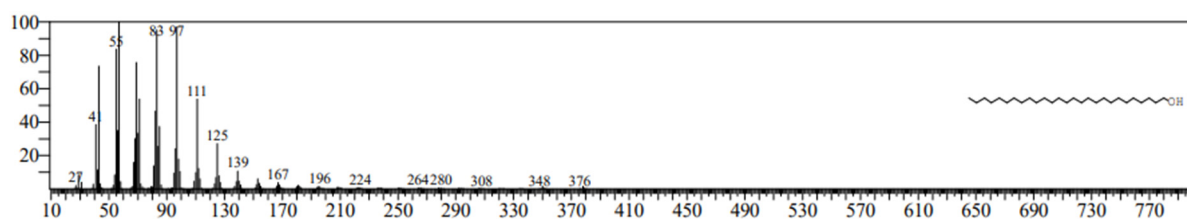
33. Compound name: l-Leucine



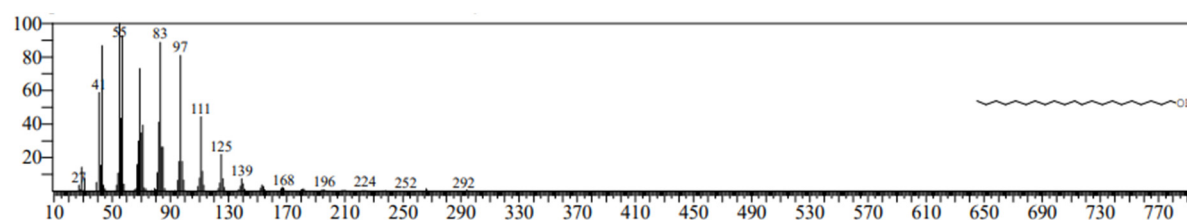
34. Compound name: l-(+)-Ascorbic acid 2,6-dihexadecanoate



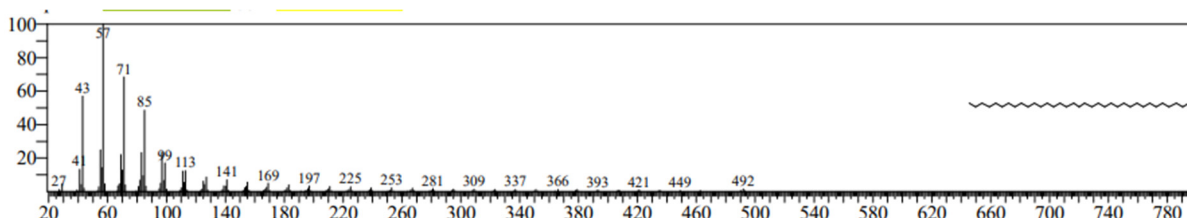
35. Compound name: 1-Heptacosanol



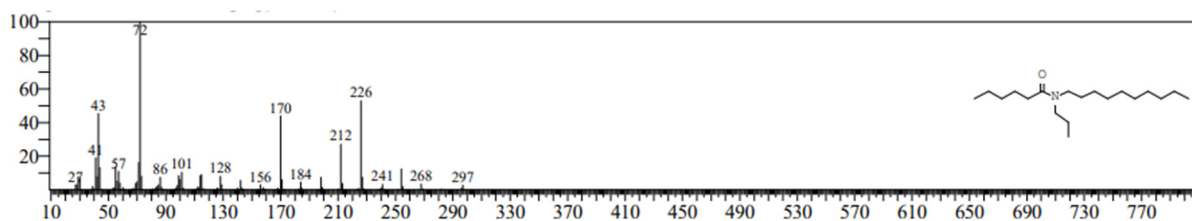
36. Compound name: 1-Heneicosanol



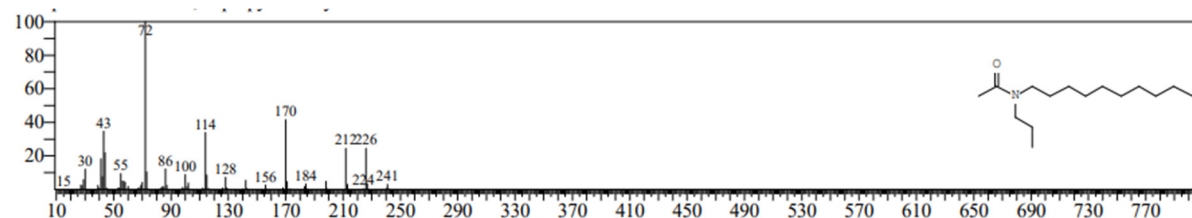
37. Compound name: Pentatriacontane



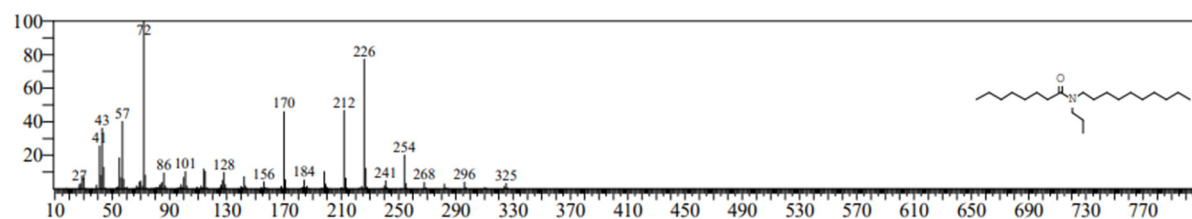
38. Compound name: Hexanamide, N-propyl-N-decyl



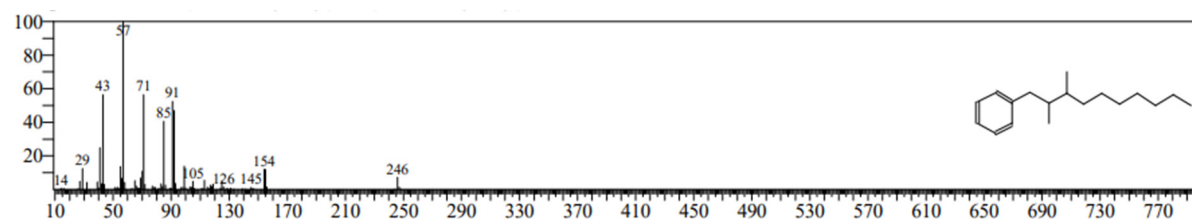
39. Compound name: Acetamide, N-propyl-N-decyl



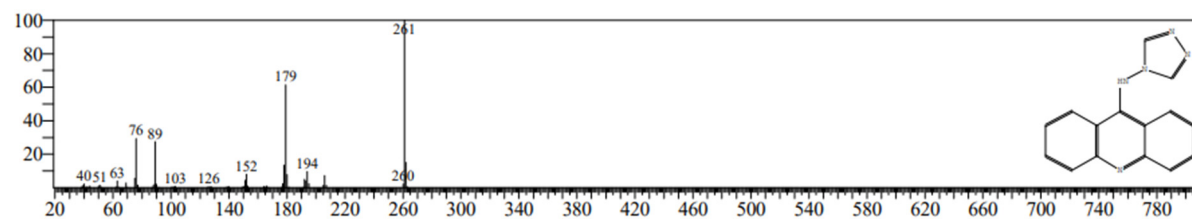
40. Compound name: Octanamide, N-propyl-N-decyl



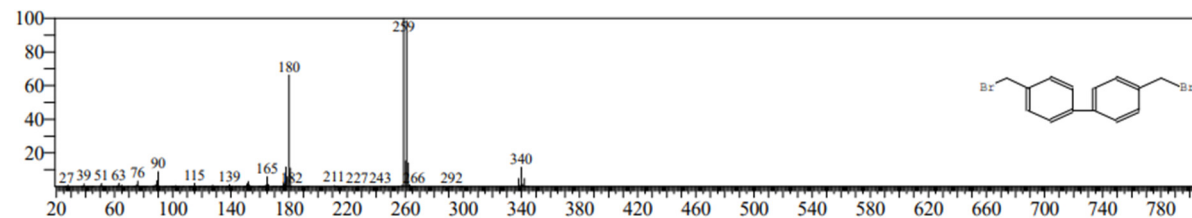
41. Compound name: Benzene, (2,3-dimethyldecyl)-



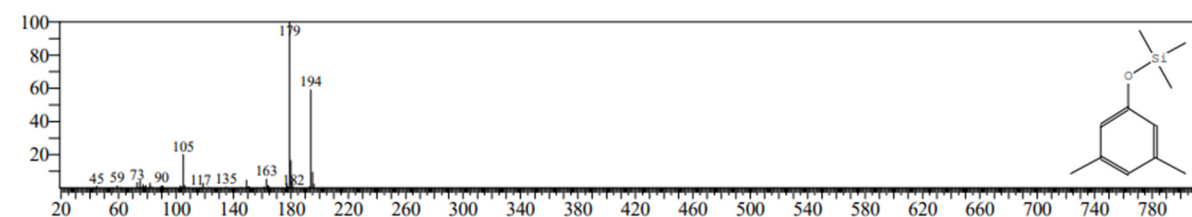
42. Compound name: Acridin-9-yl-[1,2,4]triazol-4-yl-amine



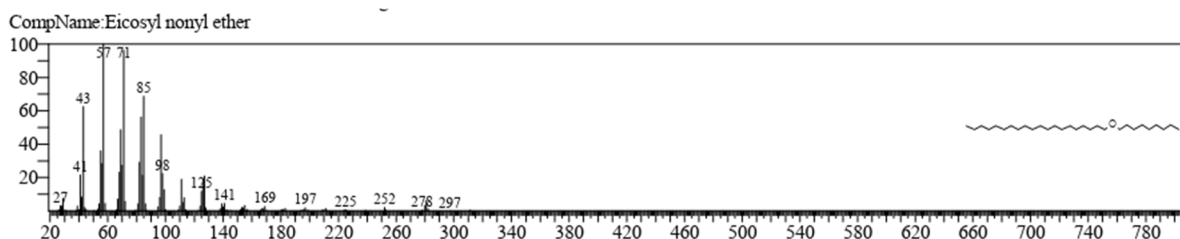
43. Compound name: 1,1'-Biphenyl, 4,4'-bis(bromomethyl)-



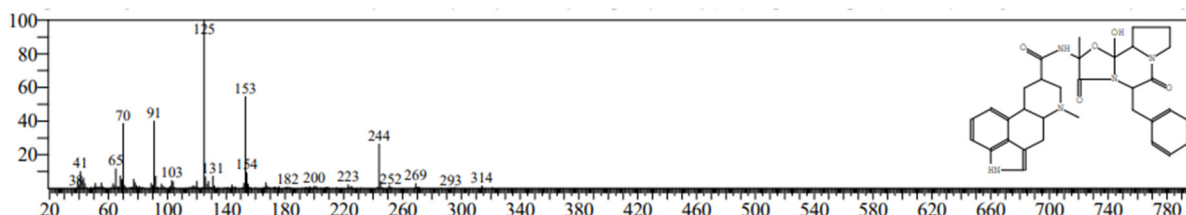
44. Compound name: Silane, trimethyl(3,5-xylyloxy)-



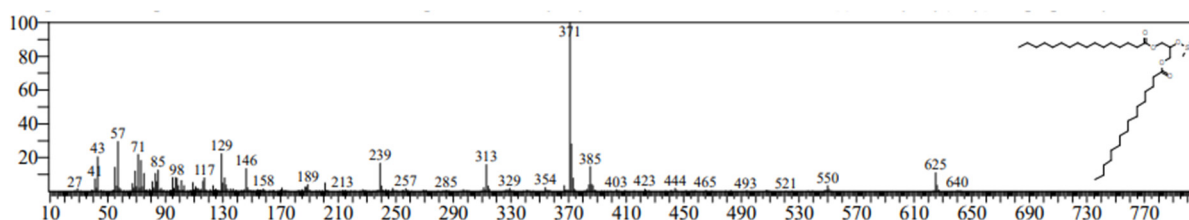
45. Compound name: Eicosyl nonyl ether



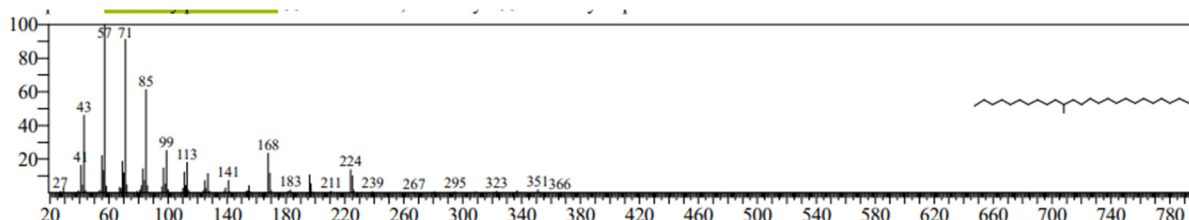
46. Compound name: Ergotaman-3',6',18-trione, 9,10-dihydro-12'-hydroxy-2'-methyl-5'-(phenylmethyl)-, (5'.alpha.,10.alpha.)-



47. Compound name: 1,3-Dipalmitin, TMS derivative

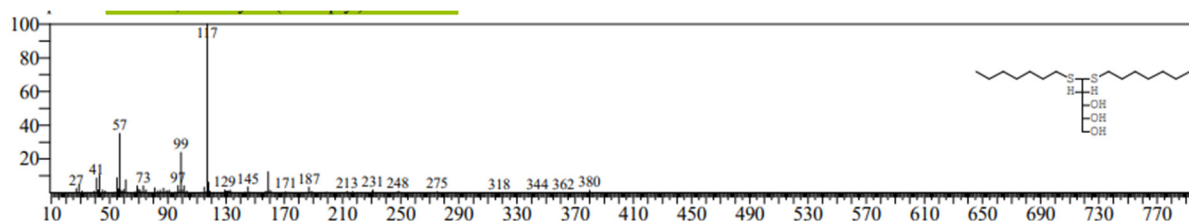


48. Compound name: 11-Methylpentacosane

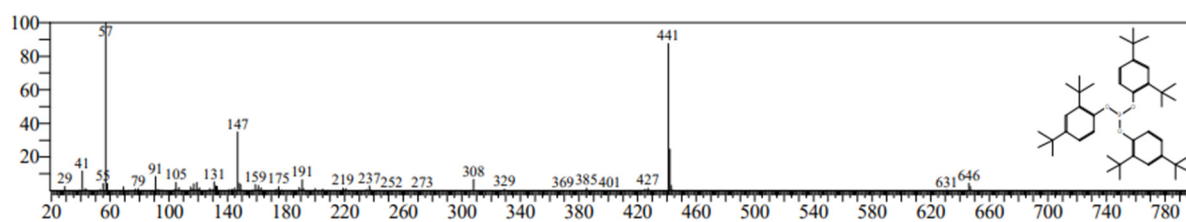


Mass fragmentation patterns and structural elucidations of unique secondary metabolites secreted by *Serendipita indica* and *Zhihengliuella* sp. ISTPL4 in presence of arsenic stress

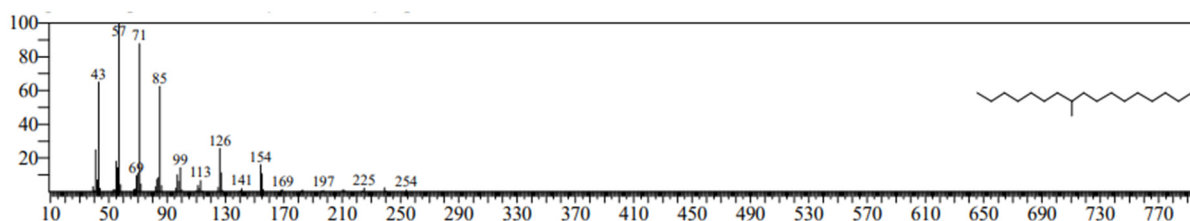
1. Compound name: d-Ribose, 2-deoxy-bis(thioheptyl)-dithioacetal



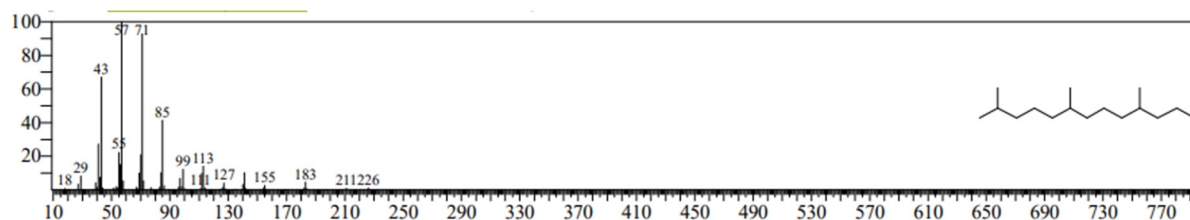
2. Compound name: Phenol, 2,4-bis(1,1-dimethylethyl)-, phosphite



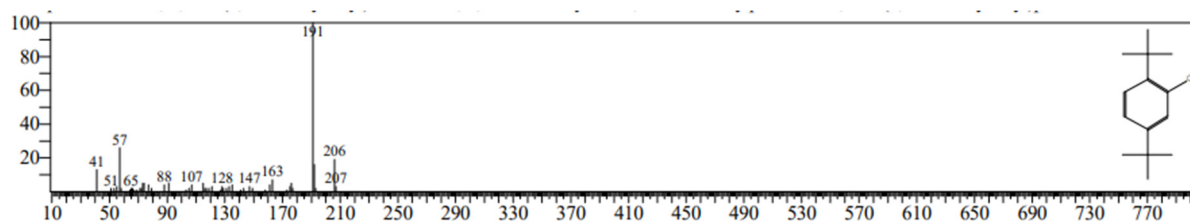
3. Compound name: Heptadecane, 8-methyl



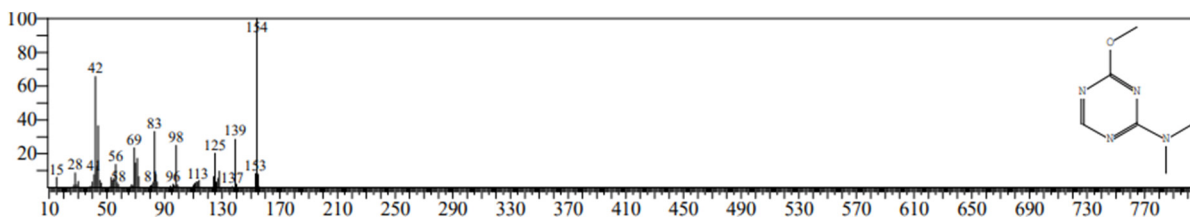
4. Compound name: 2,6,10-Trimethyltridecane



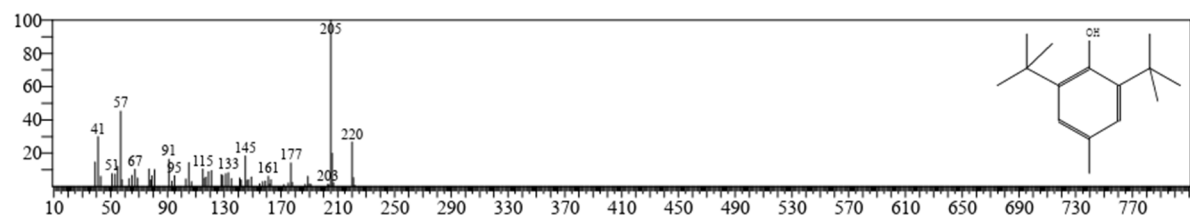
5. Compound name: Phenol, 2,5-bis(1,1-dimethylethyl)-



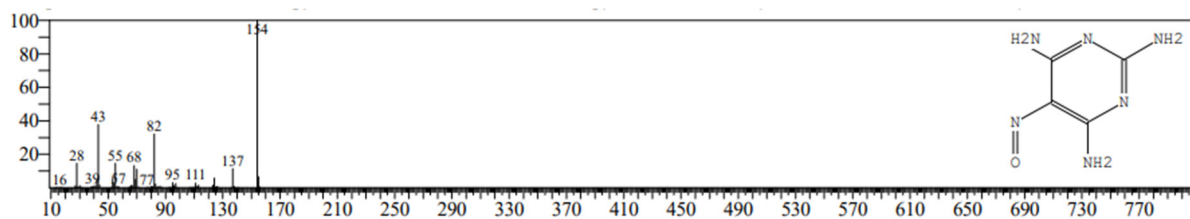
6. Compound name: 5-Azacytosine, N,N,O-trimethyl



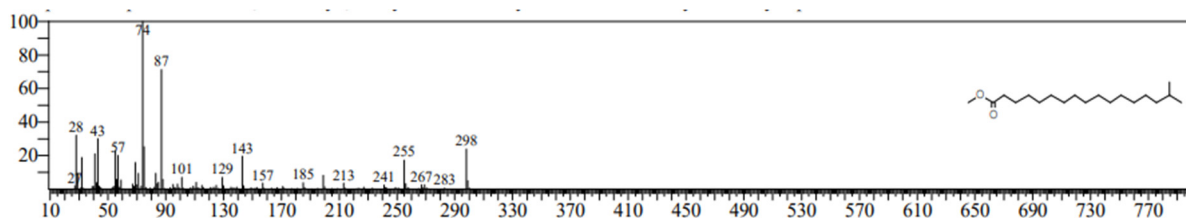
7. Compound name: Butylated Hydroxytoluene



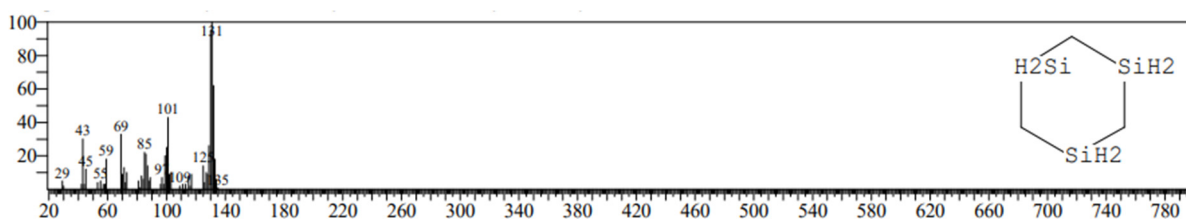
8. Compound name: 5-Nitroso-2,4,6-triaminopyrimidine



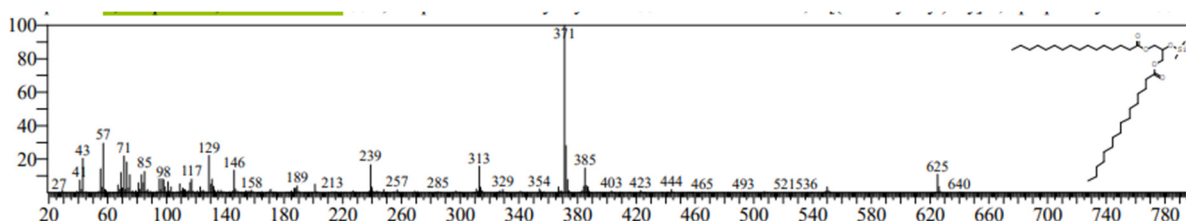
9. Compound name: Heptadecanoic acid, 16-methyl-, methyl ester



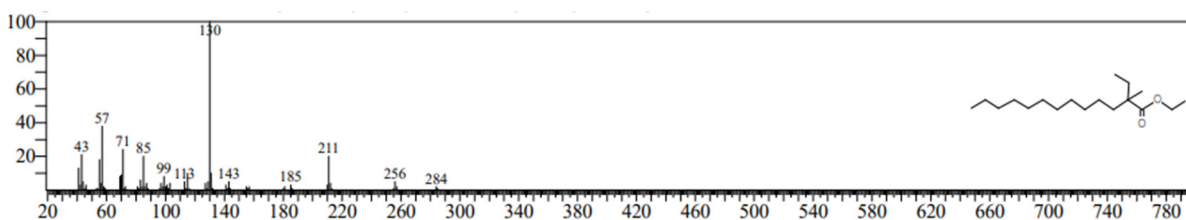
10. Compound name: 1,3,5-Trisilacyclohexane



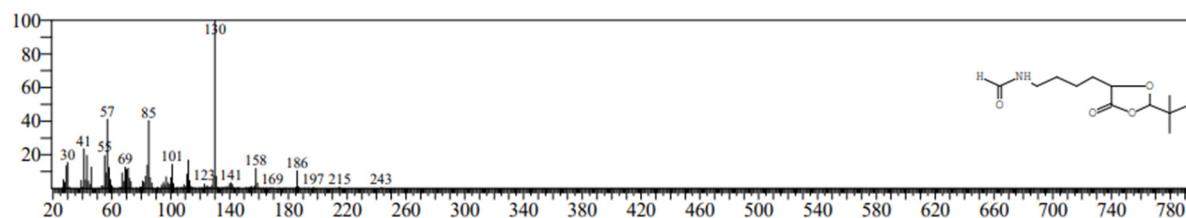
11. Compound name: 1,3-Dipalmitin, TMS derivative



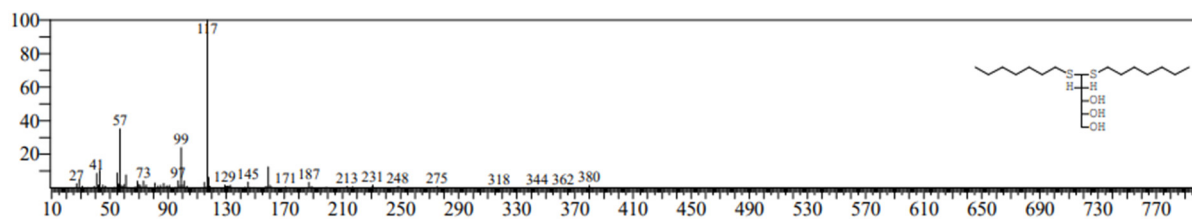
12. Compound name: Tridecanoic acid, 2-ethyl-2-methyl-, ethyl ester



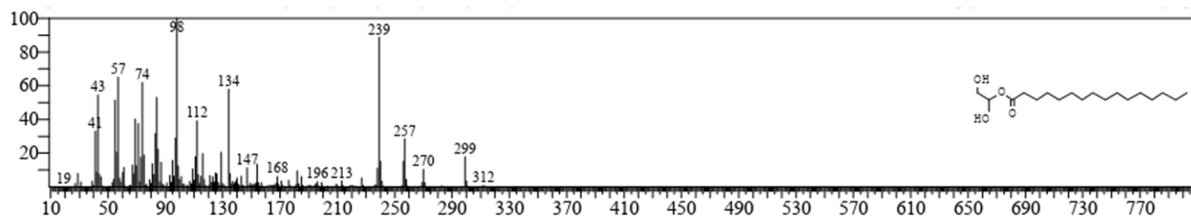
13. Compound name: Formamide, N-(4-[2-(1,1-dimethylethyl)-5-oxo-1,3-dioxolan-4-yl]butyl)



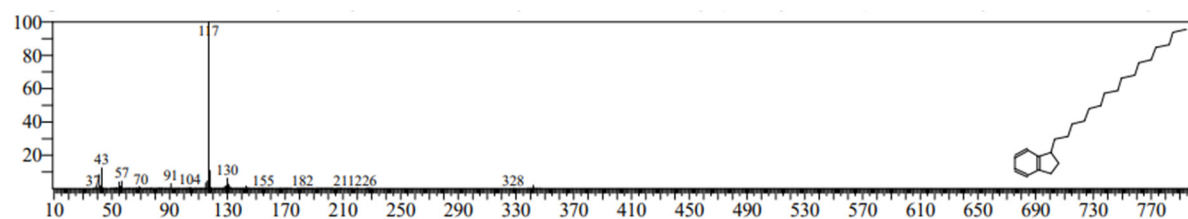
14. Compound name: d-Ribose, 2-deoxy-bis(thioheptyl)-dithioacetal



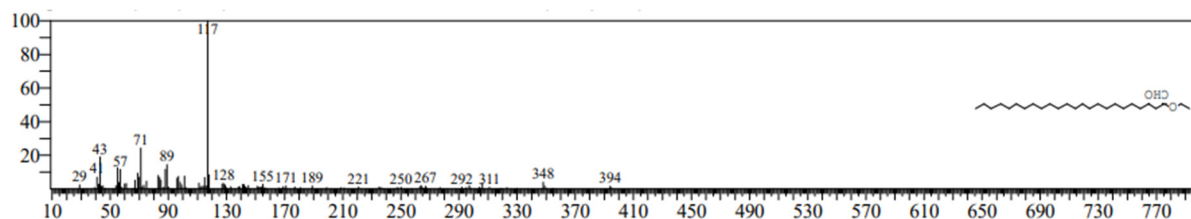
15. Compound name: Hexadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester



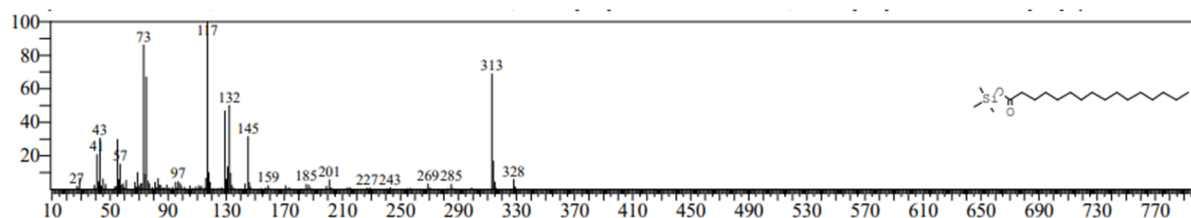
16. Compound name: 1H-Indene, 1-hexadecyl-2,3-dihydro



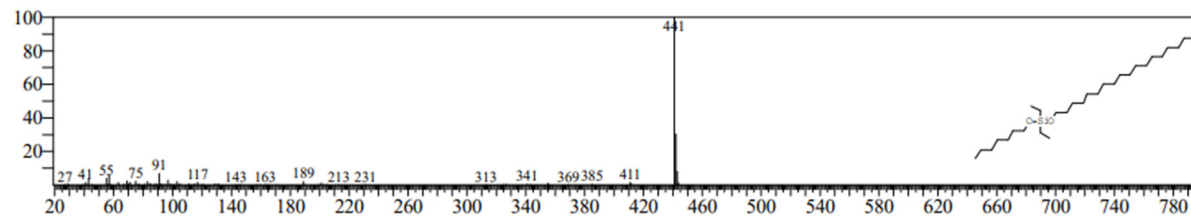
17. Compound name: Ethyl 3-hydroxytetracosanoate



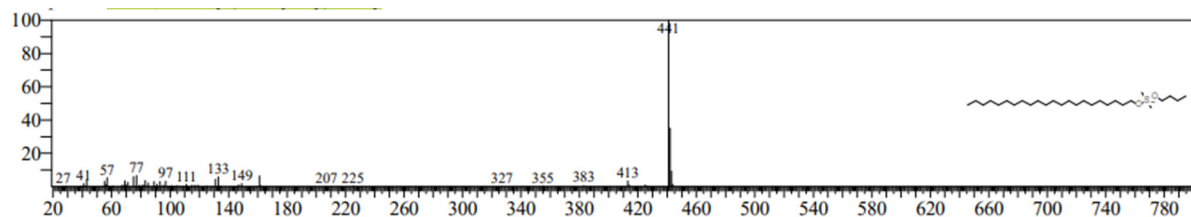
18. Compound name: Palmitic Acid, TMS derivative



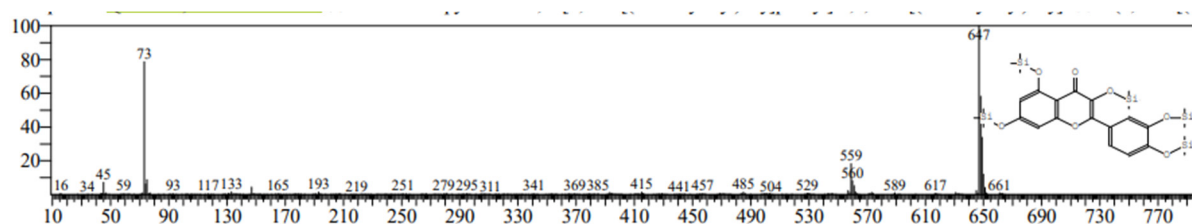
19. Compound name: Silane, diethylheptyloxyoctadecyloxy



20. Compound name: Silane, dimethyl(docosyloxy)butoxy



21. Compound name: Quercetin, 5TMS derivative



22. Compound name: Pentacyclo[19.3.1.1(3,7).1(9,13).1(15,19)]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, 5,11,17,23-te

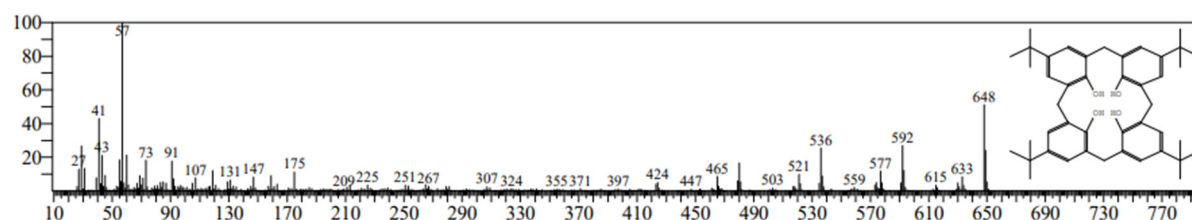


Table S1. Secondary metabolites production in *Serendipita indica* under normal conditions

S. No	Metabolites	Area %	Retention time	Molecular formula	Molecular weight	Functions
1	Olean-18-ene		-	C ₃₀ H ₅₀	410	Antiviral activity [22]
2	L-Leucine			C ₂₁ H ₃₉ NO ₃	353	L-Leucine can be assimilated by bacteria when sugars or other preferential carbon sources in the habitat are depleted [23]
3	L-Proline		-	C ₂₇ H ₅₁ NO ₃	437	Antioxidant activity and protect plants under stress conditions [24]
4	L-(+)-Ascorbic acid 2,6-dihexadecanoate		-	C ₃₈ H ₆₈ O ₈	652	Antimicrobial activity [25]
5	Heptadecyl trifluoroacetate	-	-	C ₁₉ H ₃₅ F ₃ O ₂	352	Antioxidant activity [26]
6	5,5-Diethylpentadecane	-	-	C ₁₉ H ₄₀	268	Antimicrobial activity [27]
7	Cyclo(L-prolyl-L-valine)	1.82	16.783	C ₁₀ H ₁₆ N ₂ O ₂	196	It is a metabolite involved in the signaling process by releasing AHL. [28]
8	Heneicosane	0.13	14.893	C ₂₁ H ₄₄	296	Antimicrobial activity against <i>Streptococcus</i>

						<i>pneumoniae</i> and <i>Aspergillus fumigatus</i> [29,44]
9	Ergotaman-3',6',18-trione			C ₃₃ H ₃₇ N ₅ O ₅	583	Antimicrobial activity [30]
10	Glycine	-	-	C ₁₀ H ₁₉ NO ₄	217	It is a proteinogenic amino acids which help in abiotic stress in plant [31]
11	Quinoline-4-carboxamide 2-phenyl-N-n.-octyl	-	-	C ₂₄ H ₂₈ N ₂ O	360	Antibacterial activity [32]
12	Phenol, 2,4-bis (1,1-dimethyl ethyl)-, phosphite	13.23	32.943	C ₄₂ H ₆₃ O ₃ P	646	Antioxidant and antifungal activity [33]
13	Lycopene	-	-	C ₄₀ H ₆₆	546	Anticancer agent [38]
14	Methanone, (3,5-dimethyl-1-piperidyl)(2-phenyl-4-quinoliny)-	-	-	C ₂₃ H ₂₄ N ₂ O	344	Antioxidant activity [79] It generated NO and ROS during stress in plant [33,79]
15	Formamide, N-(4-[2-(1,1-dimethylethyl)-5-oxo-1,3-dioxolan-4-yl]butyl)			C ₁₂ H ₂₁ NO ₄	243	Antimicrobial activity [41]
16	2-(4-Hydroxy-4-methyl-tetrahydro-pyran-3-ylamino)-3-(1H-indol-2-yl)-propionic acid	-	-	C ₁₇ H ₂₂ N ₂ O ₄	318	Probiotic compound [42]
17	Nonadecane	0.38	14.028	C ₁₉ H ₃₈	266	Antibacterial activity [44]
18	Eicosane	0.18	12.511	C ₂₀ H ₄₂	282	Antifungal, antibacterial, larvicidal activity [45]
19	Dodecane,4,6-dimethyl	0.23	10.212	C ₁₄ H ₃₀	198	Antimicrobial activity [46]
20	Dodecane, 2,6,11-trimethyl			C ₁₅ H ₃₂	212	Antimicrobial activity [46]
21	Tetradecane	0.33	11.371	C ₁₄ H ₂₈	196	Nematicidal activity [47]
22	2-Methylhexacosane	-	-	C ₂₇ H ₅₆	380	antimicrobial activity [47]
23	2-Propenoic acid, pentadecyl ester	0.98	15.173	C ₁₈ H ₃₄ O ₂	282	Not found [48]
24	1-Hexadecanol	0.62	13.938	C ₁₆ H ₃₄ O	242	Antifungal and

						antifeedant ability [48]
25	1,3-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	0.54	25.280	C ₂₄ H ₃₈ O ₄	390	Antimicrobial activity [48]
26	2-Propenoic acid, pentadecyl ester	0.98	15.173	C ₁₈ H ₃₄ O ₂	282	Not found [48]
27	Octadecane	0.27	16.396	C ₁₈ H ₃₈	254	Antifungal activity [48,49]
28	Isopropyl myristate	0.27	16.656	C ₁₇ H ₃₄ O ₂	270	Antifungal and antioxidant activity [50]
29	Trifluoro acetoxy hexadecane	1.00	17.328	C ₁₈ H ₃₃ F ₃ O ₂	338	Antifungal activity [51]
30	Tetracosane	1.07	17.600	C ₂₄ H ₅₀	338	Antimicrobial activity [51]
31	7,9-Di-tert-butyl-1-oxaspiro (4,5) deca-a-6,9-diene-2,8-dione	2.01	17.634	C ₁₇ H ₂₄ O ₃	276	Antimicrobial and antioxidant activity [53]
32	Hexadecenoic acid, methyl ester	0.71	17.765	C ₁₇ H ₃₄ O ₂	270	Antifungal activity [54]
33	Pyrrole[1,2-a] pyrazine-1,4-dione, hexahydro-3-(2-methyl propyl)	1.30	17.829	C ₁₁ H ₁₈ N ₂ O ₂	210	Antimicrobial activity [55]
34	Hexacosyl nonyl ether	0.71	17.920	C ₃₅ H ₇₂ O	508	Antimicrobial activity [56]
35	Dibutyl phthalate	1.49	18.134	C ₁₆ H ₂₂ O ₄	278	Antioxidant and antimicrobial activities [56]
36	l-(+)-Ascorbic acid 2,6-dihexadecanoate	1.03	18.255	C ₃₈ H ₆₈ O ₈	652	Antiallergic, Antibacterial, Termiticide and Antiviral activity [57,58]
37	Phthalic acid, 5-methylhex-yl butyl ester	0.44	18.311	C ₁₉ H ₂₈ O ₄	320	Contaminant-[59]
38	Isopropyl palmitate	0.60	18.765	C ₁₉ H ₃₈ O ₂	298	It has antiproliferative activity [60]
39	1,2-Benzenedicarboxylic acid, butyl octyl ester	0.28	19.114	C ₂₀ H ₃₀ O ₄	334	Antioxidant activity [61]
40	n-Tetracosanol-1	0.81	19.426	C ₂₄ H ₅₀ O	354	Antioxidant activity [62]
41	2-Methyltetracosane	0.14	19.500	C ₂₅ H ₅₂	352	Free-radical scavenging activity [63]
42	Nonadecane nitrile	0.16	19.637	C ₁₉ H ₃₇ N	279	Antifungal activity [64]
43	Methyl stearate	0.76	19.804	C ₁₉ H ₃₈ O ₂	298	Antifungal, free-radical

						scavenging activity [65]
44	Dodecane, 1,1-dimethoxy-Lauraldehyde	0.63	20.244	C ₁₄ H ₃₀ O ₂	230	Antifungal, antimicrobial antibacterial activities [66]
45	Octadecanoic acid 3-oxo-, ethyl ester	0.19	22.945	C ₂₀ H ₃₈ O ₃	326	Antifungal activity [67]
46	2-Ethylbutyric acid, eicosyl ester	2.16	23.131	C ₂₆ H ₅₂ O ₂	396	Antioxidant, anti-inflammatory, Antioxidant activity, anticancer [68]
47	Hexadecanoic acid, 2-hydroxy-1- (hydrooxymethyl) ethyl ester	22.44	23.344	C ₁₉ H ₃₈ O ₄	330	Antioxidant, nematocidal activity [69]
48	Octadecanoic acid, 2,3-dihydroxypropyl ester	7.31	25.087	C ₂₁ H ₄₂ O ₄	358	Antimicrobial, nematocidal [69]
49	Bis(2-ethylhexyl) phthalate	2.11	23.457	C ₂₄ H ₃₈ O ₄	390	Plasticizers [70]
50	Octocrylene 2-Propenoic acid,	0.16	24.490	C ₂₄ H ₂₇ NO ₂	361	Antioxidant activities [70,71]
51	Squalene e 2,6,10,14,18,22-Tetracosahexaene,	2.19	25.953	C ₃₀ H ₅₀	410	It is a precursor of various hormones and having antioxidant activities [72]
52	Tris (2,4-di-tert-butyl phenyl) phosphate	0.98	33.436	C ₄₂ H ₆₃ O ₄ P	662	Antioxidant activity [73]
53	2-methyl tetracosane	0.14	19.515	C ₂₅ H ₅₂	352	Antifungal activity [74,75]
54	2,6,10-Trimethyltridecane			C ₁₆ H ₃₄	226	Antimicrobial activity [76]
55	2-Isopropyl-5-methyl-1-heptanol			C ₁₁ H ₂₄ O	172	Antimicrobial activity [78]
56	Behenic alcohol	-	-	C ₂₂ H ₄₆ O	326	Fungicidal, larvicidal activity [79]
57	N-2-ethylhexyl acetone imine	-	-	C ₁₁ H ₂₃ N	169	Antimicrobial activity [80]
58	N(1)-(3-Methyl-1,2,4-oxadiazol-5-yl)-1-	-	-	C ₈ H ₁₃ N ₅ O	195	Antifungal activity [81]

	pyrrolidinecarboxamide					
59	Propionitrile 3-(3,5-di-tert-butyl-4-hydroxyphenyl)thio-	-	-	C ₁₇ H ₂₅ NOS	291	Antimicrobial activity [81]
60	Octahydro-2H-pyrido(1,2-a)pyrimidin-2-one	-	-	C ₈ H ₁₄ N ₂ O	154	Antimicrobial activity [82]
61	2,4-Di-tert-butyl-phenol) phosphate	2.37	12.909	C ₁₄ H ₂₂ O	206	It has fungicidal activity against (Aspergillus niger, Fusarium oxysporum and Penicillium chrysogenum [86,87]
62	Heptacos-1-ene		-	C ₂₇ H ₅₄	378	Antimicrobial activity [88]
63	12,12-Dimethoxydodecanoic acid		-	C ₁₅ H ₃₀ O ₄	274	Antimicrobial activity [89]
64	Nonyl tetradecyl ether	0.18	15.571	C ₂₃ H ₄₈ O	340	Antimicrobial activity [90]
65	1,2-Benzenedicarboxylic acid, bis (2-methyl propyl) ester	3.67	17.108	C ₁₆ H ₂₂ O ₄	278	Antimicrobial activity [90]
66	Pentadecanoic acid, methyl ester	0.36	16.350	C ₁₈ H ₃₄ O ₂	282	Antimicrobial activity [90]
67	Dodecane, 2,6,11-trimethyl			C ₁₅ H ₃₂	212	Antimicrobial activity [91]
68	Docosanoic acid, ethyl ester	0.52	18.475	C ₂₄ H ₄₈ O ₂	368	Antimicrobial activity [91]
69	Silane	-	-	C ₂₉ H ₆₂ O ₂ Si	470	Antimicrobial activity [93]

Table S2. Secondary metabolites production in *Serendipita indica* in the presence of arsenic stress

S. No	Metabolites	Area(%)	Retention time	Molecular formula	Molecular weight	Function
1	Olean-18-ene	-	-	C ₃₀ H ₅₀	410	Antiviral activity [22]
2	L-Leucine	-	-	C ₂₁ H ₃₉ NO ₃	353	L-Leucine can be assimilated by bacteria when sugars or other preferential carbon sources in the habitat

						are depleted [23]
3	L-Proline		-	C ₂₇ H ₅₁ NO ₃	437	Antioxidant activity [24]
4	Cyclo(L-prolyl-L-valine)	2.01	16.788	C ₁₀ H ₁₆ N ₂ O ₂	196	It is a metabolite involved in the signaling process by releasing AHL [28]
5	Ergotaman-3',6',18-trione,	-	-	C ₃₃ H ₃₇ N ₅ O ₅	583	Antimicrobial activity [30]
6	Phenol, 2,4-bis (1,1-dimethyl ethyl)-, phosphite	0.83	32.914	C ₄₂ H ₆₃ O ₃ P	646	Antioxidant activity [33]
7	5,9,13,17-Tetramethyl 4,8,12,16-octadecatetraenoic acid	-	-	C ₂₂ H ₃₆ O ₂	332	Antidiabetic and antiaging property [35]
8	Tetramethyl octadecatetraenoic acid	-	-	C ₂₂ H ₃₆ O ₂	331	Antidiabetic and antiaging property [35]
9	Glycerol tri caprylate	0.26	27.393	C ₂₇ H ₅₀ O ₆	470	Antifungal activity [36]
10	2-(4-Hydroxy-4-methyl-tetrahydro-pyran-3-ylamino)-3-(1H-indol-2-yl)-propionic acid	-	-	C ₁₇ H ₂₂ N ₂ O ₄	318	Probiotic compound [42]
11	3-Indol-1-yl-propionic acid, methyl ester	-	-	C ₁₇ H ₂₂ N ₂ O ₄	318	Probiotic compound [42]
12	Tridecanoic acid, 12-methyl-, methyl ester	0.38	16.370	C ₁₅ H ₃₀ O ₂	242	Antimicrobial, insecticidal activities [43]
13	7,9-Di-tert-butyl-1-oxaspiro (4,5) Deca-6,9 9-diene-2,8-dione	2.04	17.633	C ₁₇ H ₂₄ O ₃	276	Antimicrobial and antioxidant activities [53]
14	Hexadecanoic acid, methyl ester	1.33	17.772	C ₁₇ H ₃₄ O ₂	270	Antifungal activity [53]
15	Hexadecanoic acid, 2-hydroxy-1- (hydrooxymethyl) ethyl ester Palmitin,	44.99	23.334	C ₁₉ H ₃₈ O ₄	330	Antimicrobial and antioxidant activities [67]
16	2-Ethylbutyric acid, eicosyl ester	3.50	23.139	C ₂₆ H ₅₂ O ₂	396	Antimicrobial, anti-

						inflammatory, activities [68]
17	Octadecanoic acid, 2,3-dihydroxypropyl ester Stearin	14.24	25.080	C ₂₁ H ₄₂ O ₄	358	Antimicrobial, nematocidal activity [69]
18	Octocrylene 2-Propenoic acid,	0.59	24.490	C ₂₄ H ₂₇ NO ₂	361	Antifungal activity [71]
19	Tris (2,4-di-tert-butyl phenyl) phosphate	2.07	35.431	C ₄₂ H ₆₃ O ₄ P	662	antioxidant activity [73]
20	n-Hexadecanoic acid	1.44	18.239	C ₁₆ H ₃₂ O ₂	256	Nematicidal, antioxidant [81]
21	Octahydro-2H-pyrido(1,2-a)pyrimidin-2-one	-	-	C ₈ H ₁₄ N ₂ O	154	Antimicrobial activity [82,83]
22	2,4-Di-tert-butyl-phenol	9.52	12.910	C ₁₄ H ₂₂ O	206	Antimicrobial activity [84–86]
23	1,2-Benzenedicarboxylic acid, bis (2-methyl propyl) ester	0.67	17.125	C ₁₆ H ₂₂ O ₄	278	Antimicrobial activity [90,92]
24	Pyrrole[1,2-a] pyrazine-1,4-dione, hexahydro-3-(2-methyl propyl)	1.30	17.829	C ₁₁ H ₁₈ N ₂ O ₂	210	Antimicrobial activity [94]
25	Methyl stearate	1.69	19.803	C ₁₉ H ₃₈ O ₂	298	Antifungal activity [95]
26	Tetratriacontyl heptafluorobutyrate	0.32	20.729	C ₃₈ H ₆₉ F ₇ O ₂	690	Antimicrobial activity [96]
27	Myristic acid, glycidyl ester Tetradecanoic acid	0.59	21.404	C ₁₇ H ₃₂ O ₃	284	Antifungal properties, Antioxidant, nematocidal activities [97]
28	2-Propenoic acid, 3-(4-methoxyphenyl)	0.70	21.702	C ₁₈ H ₂₆ O ₃	290	Antimicrobial activity [98]
29	1,2,3,4-Tetrahydro-3- (phenyl acetamido) quinoline	0.11	22.935	C ₁₇ H ₁₈ N ₂ O	266	Antimicrobial activity [99]
30	13-Docosenamide, (Z)- Erucylamide	1.79	25.696	C ₂₂ H ₄₃ NO	337	Antimicrobial, antioxidant, anti-

						inflammatory [100,101]
31	Squalene 2,6,10,14,18,22-Tetracosahexaene,	0.80	25.946	C ₃₀ H ₅₀	410	Antibacterial, antioxidant [102]
32	2-(Decanoyloxy) propane-1,3-diyl dioctanoate	0.93	30.051	C ₂₉ H ₅₄ O ₆	498	Antioxidant activity [103]
33	Heptadecanoic acid, 16-methyl-, methyl ester	-	-	C ₁₉ H ₃₈ O ₂	298	Used in anti-skin cancer drug [104]
34	Tetrapentacontane, 1,54-dibromo-	-	-	C ₅₄ H ₁₀₈ Br ₂	914	Antifungal activity [105]
35	Triacetyl heptafluorobutyrate	-	-	C ₃₄ H ₆₁ F ₇ O ₂	634	Antimicrobial activity [106]
36	Hexatriacontyl trifluoroacetate	-	-	C ₃₈ H ₇₃ F ₃ O ₂	618	Antifungal activity [107]
37	2-Ethylhexyl trans-4-methoxycinnamate	-	-	C ₁₈ H ₂₆ O ₃	290	Antimicrobial activity [108]
38	9-Octadecenamide	-	-	C ₁₈ H ₃₅ NO	281	It is a compound that is used in the medical industry for mood and sleep disorder [109]
39	1,2,3,4-Tetrahydronaphthalen-1-yl 2,2,3,3,3-pentafluoropropanoate	-	-	C ₁₃ H ₁₁ F ₅ O ₂	294	Antimicrobial activity [110]
40	L-Tryptophan,N-methyl-, methyl ester	-	-	C ₁₃ H ₁₆ N ₂ O ₂	232	Antimicrobial activity [111]
41	2-Ethylbutyric acid, eicosyl ester	-	-	C ₂₆ H ₅₂ O ₂	396	Antimicrobial activity [112]
42	Fumaric acid, 2,2,2-trichloroethyl tridecyl ester			C ₁₉ H ₃₁ Cl ₃ O ₄	428	These are esters used for the treatment of

						psoriasis and sclerosis [113]
43	Cyclooctadecane	-	-	C ₂₀ H ₄₀	280	Antifungal activity [114]
44	2,6,10,14,18-Pentamethyl-2,6,10,14,18-eicosapentaene	-	-	C ₂₅ H ₄₂	342	Antimicrobial activity [115]
45	Lycopene	-	-	C ₄₀ H ₆₆	546	Anticancer agent [73,116]
46	3-(Octanoyloxy)propane-1,2-diyl bis(decanoate)	-	-	C ₃₁ H ₅₈ O ₆	526	Anti-inflammatory activity [117]
47	Pentacyclo[19.3.1.1(3,7).1(9,13).1(15,19)]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, 5,11,17,23-	-	-	C ₄₄ H ₅₆ O ₄	648	Antimicrobial activity [118]

Table S3. Secondary metabolites production in *Serendipita indica* and *Z. sp. ISTPL4* under normal conditions

S. No.	Metabolites	Area %	Retention time	Molecular formula	Molecular weight	Function
1	Butylamine, N,N-dipentyl	-	-	C ₁₄ H ₃₁ N	213	Antimicrobial activity[13]
2	Eicosyl nonyl ether	-	-	C ₂₉ H ₆₀ O	424	Antimicrobial activity[13]
3	Fumaric acid, 2-(diethylamino)ethyl tetradecyl ester	-	-	C ₂₄ H ₄₅ NO ₄	411	These are alkaloids having antibacterial activity[13]
4	Olean-18-ene	-	-	C ₃₀ H ₅₀	410	Antimicrobial activity[22]
5	L-Leucine	-	-	C ₂₁ H ₃₉ NO ₃	353	L-Leucine can be assimilated by bacteria when sugars or other preferential carbon sources in the habitat are depleted[23]
6	L-Proline	-	-	C ₂₈ H ₅₃ NO ₃	451	In view of the abundance and different functions of L-proline, it is not surprising that bacteria employ various L-proline-specific transport

						systems and enzymes allowing the utilization of external L-proline. These systems play important roles in the adaptation of single-cell organisms to steadily changing environmental conditions as they occur in soil, water and during interactions with eukaryotic hosts. [24]
7	l-(+)-Ascorbic acid 2,6-dihexadecanoate	-	-	C ₃₈ H ₆₈ O ₈	652	Antimicrobial activity[25]
8	Heneicosane, 10-methyl-	0.18	14.344	C ₂₂ H ₄₆	310	Antimicrobial activity[[26]
9	Cyclo(L-prolyl-L-valine)	1.39	-	C ₁₀ H ₁₆ N ₂ O ₂	196	Class of diketopiperazines (DKPs) the compound cyclo-(L-prolyl-L-valine) activated N-acyl homoserine lactone (AHL) bioreporters, indicating that Archaea may have the ability to interact with AHL-producing bacteria within mixed communities. [28]
10	Heneicosane	0.13	14.893	C ₂₁ H ₄₄	296	Antimicrobial activity against <i>Streptococcus pneumoniae</i> and <i>Aspergillus fumigatus</i> [34]
11	Silane, trimethyl(3,5-xylyloxy)-	-	-	C ₁₁ H ₁₈ OSi	194	Antimicrobial activity[38][97]
12	Ergotaman-3',6',18-trione, 9,10-dihydro-12'-hydroxy-2'-methyl-5'-(phenylmethyl)-, (5'.alpha.,10.alpha.)-	-	-	C ₃₃ H ₃₇ N ₅ O ₅	583	Antimicrobial, Anti-inflammatory, activity[44]
13	Eicosane	0.18	12.511	C ₂₀ H ₄₂	282	Antifungal, antibacterial,

						larvicidal activity [45]
14	3-Eicosene, (E)-	-	-	C ₂₀ H ₄₀	280	Antifungal, antibacterial, larvicidal activity [45]
15	Propionamide, N-propyl-N-decyl	-	-	C ₁₆ H ₃₃ NO	255	Antimicrobial activity[[45]
16	Octadecane	-	-	C ₁₈ H ₃₈	254	Antifungal activity[48]
17	Tetracosane	1.07	17.600	C ₂₄ H ₅₀	338	Antimicrobial activity[[52]
18	Ergotaman-	-	-	C ₃₃ H ₃₇ N ₅ O ₅	581	Antimicrobial, Anti-inflammatory, activity[44]
19	Tetracosane	0.49	20.146	C ₂₄ H ₅₀	338	Antimicrobial activity[[52]
20	7,9-Di-tert-butyl-1-oxaspiro (4,5) deca-a-6,9-diene-2,8-dione	2.01	17.634	C ₁₇ H ₂₄ O ₃	276	Antimicrobial and antioxidant activity[53]
21	Hexadecenoic acid, methyl ester	0.71	17.765	C ₁₇ H ₃₄ O ₂	270	Antifungal activity[54]
22	n-Hexadecanoic acid methyl ester	2.99	18.257	C ₁₇ H ₃₄ O ₂	270	Antimicrobial activity[54]
23	I-Nonadecene	0.22	16.323	C ₁₉ H ₃₈	266	Antibacterial activity][[62]
24	2-Methyltetracosane	0.28	11.578	C ₂₅ H ₅₂	352	Free-radical scavenging activity [63]
25	octadecanoic acid, 3-oxo-, ethyl ester	0.59	22.945	C ₂₀ H ₃₈ O ₃	326	Antibacterial activity][[67]
26	Hexadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester	46.06	23.354	C ₁₉ H ₃₈ O ₄	330	Antimicrobial activity [69]
27	2-Methylhexacosane	0.18	19.421	C ₂₇ H ₅₆	380	Antimicrobial activity[77]
28	Octadecanoic acid, 2,3-dihydroxypropyl ester	14.81	25.093	C ₂₁ H ₄₂ O ₄	358	Antimicrobial activity[[77]
29	Propionamide, N-propyl-N-decyl	0.54	20.558	C ₁₆ H ₃₃ NO	255	Antimicrobial activity[80]
30	Pyrrole[1,2-a] pyrazine-1,4-dione, hexahydro-3-(2-methyl propyl)	1.30	17.829	C ₁₁ H ₁₈ N ₂ O ₂	210	Antimicrobial activity[81]

31	Diethylpent-4-enylamine	3.35	16.807	C ₉ H ₁₉ N	141	Antimicrobial activity [84]
32	3,6-Diisopropylpiperazin-2,5-dione	0.13	17.158	C ₁₀ H ₁₈ N ₂ O ₂	198	Antimicrobial[[84]
33	2,4-Di-tert-butyl-phenol) phosphate	2.37	12.909	C ₁₄ H ₂₂ O	206	It has fungicidal activity against (<i>Aspergillus niger</i> , <i>Fusarium oxysporum</i> and <i>Penicillium chrysogenum</i> [86]
34	1,2-Benzenedicarboxylic acid, bis (2-methyl propyl) ester	3.67	17.108	C ₁₆ H ₂₂ O ₄	278	Antimicrobial activity[92]
35	Methyl stearate	0.68	19.802	C ₁₉ H ₃₈ O ₂	298	Antifungal, free-radical scavenging activity[[[96]
36	Hexadecane	-		C ₁₆ H ₃₄	226	It is a long-chain volatile organic compound secreted by bacteria that confer induced resistance against both <i>Pectobacterium carotovorum</i> and <i>Pseudomonas syringae</i> . [119]
37	Tetradecane	0.33	11.371	C ₁₄ H ₂₈	196	Nematicidal activity[120]
38	Heptadecane	0.22	12.505	C ₁₇ H ₃₆	240	These are the mVOC that trigger plant growth promotion by activating the signaling cascade in plant[[121][122]
39	2-Methyltetracosane	-	-	C ₂₅ H ₅₂	352	Free-radical scavenging activity[121][123]
40	Tetrapentacontane	0.11	23.465	C ₅₄ H ₁₁₀	758	Antibacterial and antioxidant activity[124][127]
41	Hexanoic acid, heptadecyl ester	3.11	23.174	C ₂₃ H ₄₆ O ₂	354	Antifungal activity[125-127]
42	Tetradecyl trifluoroacetate	-	-	C ₁₆ H ₂₉ F ₃ O ₂	310	Antimicrobial activity[128-130]
43	6,6-Diethylhooctadecane	0.12	17.690	C ₂₂ H ₄₆	310	Antimicrobial activity[130]
44	Eicosane, 1-iodo	-	-	C ₂₀ H ₄₁ I	408	Antimicrobial

						activity[[131]
45	Docosane	-	-	C22H46	310	Antimicrobial activity[132]
46	Hexadecane, 2,6,10,14-tetramethyl	-	-	C20H42	282	Antimicrobial activity[133]
47	5,5-Diethylheptadecane	-	-	C21H44	296	Antimicrobial compound[134]
48	11-Methylpentacosane	-	-	C26H54	366	Antimicrobial compound[134]
49	Cyclopropanecarboxamide, N-(2-butyl)-N-propyl	-	-	C16H31NO	253	Antimicrobial activity[135]
50	3,6-Diisopropylpiperazin-2,5-dione	-	-	C10H18N2O2	198	Antimicrobial activity [136]
51	2-Diethylaminomethyl-3-hydroxy-6-hydroxymethyl-pyran-4-one	-	-	C11H17NO4	227	Antimicrobial activity[137][138]
52	7-Ethyl-4,6-heptadecandione	-	-	C19H36O2	296	Antimicrobial activity[139]
53	6,6 Diethylhooctadecane	-	-	C20H42	282	Antimicrobial activity[[140]
54	1-Heptacosanol	-	-	C27H56O	396	Antimicrobial activity[141]
55	1-Heneicosanol	-	-	C21H44O	312	Antibacterial activity[142]
56	Butylated Hydroxytoluene	-	-	C15H24O	220	Antimicrobial[[142]
57	2-Methylhexacosane	-	-	C27H56	380	Pharmaceutically important and anticancer activity [143]
58	Pentatriacontane	-	-	C35H72	492	Antifungal activity[144][145]
59	Hexanamide, N-propyl-N-decyl	-	-	C19H39NO	297	Antimicrobial activity, anti-inflammatory action[146]
60	Acetamide, N-propyl-N-decyl	-	-	C15H31NO	241	It is herbicide which controls weeds and grasses[147]
61	Octanamide, N-propyl-N-decyl	-	-	C21H43NO	325	Antifungal activity[148]
62	Benzene, (2,3-dimethyldecyl)-	-	-	C18H30	246	Antimicrobial activity[149]
63	Acridin-9-yl-[1,2,4]triazol-4-yl-amine	-	-	C15H11N5	261	Anti tuberculosis[[150]
64	Silane methyl	-	-	C11H18OSi	195	Antimicrobial activity [93]
65	1,1'-Biphenyl, 4,4'-	-	-	C14H12Br2	338	Antimicrobial

	bis(bromomethyl)-					activity[151]
66	1,3-Dipalmitin, TMS derivative	-	-	C38H76O5Si	640	Antioxidant activity[152]
67	Glycerol 1-palmitate	-	-	C19H38O4	330	Antimicrobial activity[153][154]

Table S4. Secondary metabolites production in *Serendipita indica* and *Z. sp. ISTPL4* in the presence of arsenic stress

S. No.	Metabolites	Area %	Retention time	Molecular formula	Molecular weight	Function
1	L-Proline	-	-	C27H51NO3	437	Antioxidant activity [22]
2	5-Azacytosine, N,N,O-trimethyl	-	-	C6H10N4O	154	-Antimicrobial activity [32]
3	Olean-18-ene	-	-	C30H50	410	Antiviral activity [22]
4	5-Nitroso-2,4,6-triaminopyrimidine			C4H6N6O	154	Antimicrobial activities [32]
5	Phenol, 2,4-bis(1,1-dimethylethyl)-, phosphite	4.12	32.990	C42H63O3P	646	Antioxidant and antifungal activity [33]
6	Heneicosane	3.23	35.443	C21H44	296	Antimicrobial activity against <i>Streptococcus pneumoniae</i> and <i>Aspergillus fumigatus</i> [34]
7	Ethyl 3-hydroxytetracosanoate	-	-	C26H52O3	412	Antioxidant activity [35]
8	Formamide, N-(4-[2-(1,1-dimethylethyl)-5-oxo-1,3-dioxolan-4-yl]butyl)	-	-	C12H21NO4	243	Antimicrobial activity [41]
9	d-Ribose, 2-deoxy-bis(thioheptyl)-dithioacetal	-	-	C19H40O3S2	380	Antimicrobial activity [41]
10	Quercetin, 5TMS derivative		-	C30H50O7Si5	662	Quercetin, a plant-derived polyphenolic flavonoid, has been linked with health benefits in both humans and animals. Quercetin, a natural plant-derived dietary polyphenol,

						possesses a high safety profile and extensive beneficial properties including potent antioxidant, anti-inflammatory, antiviral. [41]
11	Tridecanoic acid, 2-ethyl-2-methyl-, ethyl ester	-	-	C ₁₈ H ₃₆ O ₂	284	Antimicrobial, insecticidal activities [43]
12	Pyrrolo[1,2-a]pyrazine-1,4-dione, hexahydro-3-(2-methylpropyl)	-	-	C ₁₁ H ₁₈ N ₂ O ₂	210	Antifungal activity [45]
13	Eicosane	0.23	12.573	C ₂₀ H ₄₂	282	Antimicrobial activity [45]
14	Palmitic Acid, TMS derivative	-	-	C ₁₉ H ₄₀ O ₂ Si	328	Antioxidant and antimicrobial activity [52]
15	7,9-Di-tert-butyl-1-oxaspiro(4,5)deca-6,9-diene-2,8-dione	1.39	17.138	C ₁₇ H ₂₄ O ₃	276	Antioxidants [53]
16	Hexadecanoic acid, methyl ester	0.80	17.780	C ₁₇ H ₃₄ O ₂	270	Antibacterial compound [54]
17	Pyrrolo[1,2-a]pyrazine-1,4-dione, hexahydro-3-(2-methylpropyl)-	1.66	17.965	C ₁₁ H ₁₈ N ₂ O ₂	210	Antifungal activity [55]
18	Methyl stearate	1.60	36.535	C ₁₉ H ₃₈ O ₂	298	Antifungal, antibacterial, and antioxidant activities [63]
19	octadecanoic acid, 3-oxo-, ethyl ester	0.61	22.940	C ₂₀ H ₃₈ O ₃	326	Antifungal activity [67]
20	Hexadecanoic acid, 2-hydroxy-1-(hydroxymethyl)ethyl ester	60.66	23.530	C ₁₉ H ₃₈ O ₄	330	Antioxidant, nematocidal activity [69]
21	Octadecanoic acid, 2,3-dihydroxypropyl ester	20.28	25.081	C ₂₁ H ₄₂ O ₄	358	Antimicrobial activity [69]
22	d-Ribose, 2-deoxy-bis(thioheptyl)-dithioacetal	3.22	23.125	C ₁₉ H ₄₀ O ₃ S ₂	380	Antifungal activity [73]

23	Glycerol 1-palmitate	-	-	C19H38O4	330	Antimicrobial activity [78]
24	1,3-Dipalmitin, TMS derivative	-	-	C38H76O5 Si	640	Acylglycerides [81]
25	2,4-Di-tert-butylphenol	0.25	12.952	C14H22O	206	It has herbicidal and allelochemical activity against (<i>Asystasia gangetica</i> , <i>Eleusine indica</i> , <i>Leptochloa chinensis</i> , and <i>Oldenlandia verticillata</i> [85]
26	Cyclo(L-prolyl-L-valine)	1.31	16.813	C10H16N2 O2	196	Class of diketopiperazines (DKPs) the compound cyclo-(L-prolyl-L-valine) activated N-acyl homoserine lactone (AHL) bioreporters, indicating that Archaea may have the ability to interact with AHL-producing bacteria within mixed communities. [92]
27	1,2-Benzenedicarboxylic acid, bis(2-methylpropyl) ester	0.64	17.015	C16H22O4	278	Antimicrobial activity[92]
28	Silane, dimethyl(docosyloxy)butoxy		-	C28H60O2 Si	456	Anti-inflammatory compound [93]
29	Silane, dimethyl(docosyloxy)butoxy		-	C28H60O2 Si	456	Anti-inflammatory compound [93]
30	Heptadecanoic acid, 16-methyl-, methyl ester	-	-	C19H38O2	298	Used in anti-skin cancer

						drug [104]
31	Heptadecane, 8-methyl	-		C ₁₈ H ₃₈	254	Antimicrobial activity [106]
32	Phenol, 2,5-bis(1,1-dimethylethyl)	-	-	C ₄₂ H ₆₃ O ₄ P	662	Antioxidant [139]
33	2,6,10-Trimethyltridecane	-		C ₁₆ H ₃₄	226	Antimicrobial activity [140]
34	Butylated Hydroxytoluene	-		C ₁₅ H ₂₄ O	220	Antimicrobial [140]
35	1,3,5-Trisilacyclohexane	-	-	C ₃ H ₁₂ Si ₃	132	Antimicrobial activity [143]
36	1H-Indene, 1-hexadecyl-2,3-dihydro-	-		C ₂₅ H ₄₂	342	Anticholinestr ^a ase [145]
37	Pentacyclo[19.3.1.1(3,7).1(9,13).1(15,19)]octacos-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, 5,11,17,23-te		-	C ₄₄ H ₅₆ O ₄	648	Antioxidant compound [154]