

Date : 2025-03-19

CERTIFICATE OF ANALYSIS - GC PROFILING

SAMPLE IDENTIFICATION

Internal code : 25C05-PTH02

Customer Identification : Aged Patchouli - - PK3100

Type : Essential Oil

Source : *Pogostemon cablin*

Customer : Plant Therapy

Checked and approved by:

Alexis St-Gelais, Ph. D., Chimiste 2013-174

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GAS CHROMATOGRAPHIC ANALYSIS

Method : PC-MAT-014 - Analysis of the composition of an essential oil or other volatile liquide by FAST GC-FID

✖ISO

Results : See analysis summary (next page)

Analyst : Alexis St-Gelais, Ph. D., Chimiste 2013-174

Date : 2025-03-19

PHYSICOCHEMICAL DATA

Refractive index : 1.508 ± 0.0003 (20 °C)

Method : PC-MAT-016 - Measure of the refractive index of a liquid.

Analyst : Kassandra Baker

Date : 2025-03-05

CONCLUSION

No adulterant, contaminant or diluent has been detected using this method.

ANALYSIS SUMMARY - CONSOLIDATED CONTENTS

New readers of similar reports are encouraged to read table footnotes at least once.

Identification	%	Class
α -Pinene	0.09	Monoterpene
Camphene	tr	Monoterpene
Sabinene	tr	Monoterpene
β -Pinene	0.21	Monoterpene
Octen-3-ol	tr	Aliphatic alcohol
Octan-3-one	tr	Aliphatic ketone
Myrcene	tr	Monoterpene
Octan-3-ol	0.01	Aliphatic alcohol
Limonene	0.02	Monoterpene
Terpinolene	tr	Monoterpene
Linalool	0.01	Monoterpenic alcohol
Neral	0.01	Monoterpenic aldehyde
Geranial	0.01	Monoterpenic aldehyde
Unknown	0.01	Unknown
δ -Elemene isomer	0.01	Sesquiterpene
δ -Elemene	0.17	Sesquiterpene
α -Cubebene	0.02	Sesquiterpene
Eugenol	0.03	Phenylpropanoid
α -Ylangene	0.01	Sesquiterpene
α -Copaene	0.42	Sesquiterpene
β -Patchoulene	2.72	Sesquiterpene
β -Bourbonene	0.01	Sesquiterpene
<i>cis</i> - β -Elemene	0.06	Sesquiterpene
β -Cubebene	0.03	Sesquiterpene
β -Elemene	1.15	Sesquiterpene
Cycloseychellene	0.59	Sesquiterpene
Isocaryophyllene	0.03	Sesquiterpene
β -Caryophyllene	3.59	Sesquiterpene
γ -Elemene	0.04	Sesquiterpene
Seychellene	6.47	Sesquiterpene
α -Guaiene	13.97	Sesquiterpene
Selina-5,11-diene	0.04	Sesquiterpene
Unknown	0.05	Sesquiterpene
α -Humulene	0.62	Sesquiterpene
α -Patchoulene	4.98	Sesquiterpene
Patchoulene analog IV (Improperly reported as γ -patchoulene)	0.97	Sesquiterpene
δ -patchoulene	1.70	Sesquiterpene
9- <i>epi</i> - β -Caryophyllene	0.43	Sesquiterpene
Unknown	0.02	Sesquiterpene

Selina-4,11-diene	0.03	Sesquiterpene
Unknown	0.56	Sesquiterpene
Patchoulene analog II	0.28	Sesquiterpene
Unknown	0.28	Sesquiterpene
δ -Selinene	0.18	Sesquiterpene
Unknown	0.09	Sesquiterpene
α -Selinene	0.10	Sesquiterpene
Eudesma-2,4(15),11-triene	0.12	Sesquiterpene
Aciphyllene	3.24	Sesquiterpene
Pentadecane	0.08	Alkane
δ -Guaiene	18.62	Sesquiterpene
Nootkatene	0.01	Sesquiterpene
γ -Cadinene	0.09	Sesquiterpene
7-epi- α -Selinene	0.12	Sesquiterpene
Unknown	0.01	Sesquiterpene
Unknown	0.10	Oxygenated sesquiterpene
Unknown	0.02	Oxygenated sesquiterpene
Unknown	0.11	Oxygenated sesquiterpene
Unknown	0.09	Oxygenated sesquiterpene
Unknown	0.01	Oxygenated sesquiterpene
Norpatchoulanol	0.59	Norsesquiterpenic alcohol
α -Elemol	tr	Sesquiterpenic alcohol
Germacrene B	0.05	Sesquiterpene
Unknown	0.02	Oxygenated sesquiterpene
Unknown	0.14	Oxygenated sesquiterpene
Caryophyllene oxide	0.22	Sesquiterpenic ether
Caryophyllene oxide isomer	0.06	Sesquiterpenic ether
Unknown	0.32	Oxygenated sesquiterpene
Unknown	0.10	Oxygenated sesquiterpene
Hexadecane	0.03	Alkane
Humulene epoxide II	0.04	Sesquiterpenic ether
Unknown	0.08	Oxygenated sesquiterpene
Unknown	0.18	Oxygenated sesquiterpene
Unknown	0.17	Oxygenated sesquiterpene
Unknown	0.54	Oxygenated sesquiterpene
Hinesol	0.19	Sesquiterpenic alcohol
Caryophylladienol II	0.07	Sesquiterpenic alcohol
Patchoulol	28.25	Sesquiterpenic alcohol
Pogostol	1.96	Sesquiterpenic alcohol
Unknown	0.04	Oxygenated sesquiterpene
Unknown	0.02	Oxygenated sesquiterpene
Unknown	0.13	Oxygenated sesquiterpene
Unknown	0.03	Oxygenated sesquiterpene
Unknown	0.03	Oxygenated sesquiterpene
Rotundone	0.07	Sesquiterpenic ketone

Pogostone	1.29	Terpenic lactone
Unknown	0.18	Oxygenated sesquiterpene
Unknown	0.07	Oxygenated sesquiterpene
Unknown	0.03	Oxygenated sesquiterpene
Unknown	0.03	Oxygenated sesquiterpene
Unknown	0.04	Oxygenated sesquiterpene
Unknown	0.10	Oxygenated sesquiterpene
Unknown	0.07	Oxygenated sesquiterpene
Unknown	0.02	Oxygenated sesquiterpene
Unknown	0.02	Oxygenated sesquiterpene
Unknown	0.02	Oxygenated sesquiterpene
Unknown	0.01	Oxygenated sesquiterpene
Unknown	0.01	Oxygenated sesquiterpene
Unknown	0.02	Oxygenated sesquiterpene
Corymbolone	0.01	Sesquiterpenic alcohol
Phytol	0.03	Diterpenic alcohol
Consolidated total	97.96	

tr: The compound has been detected below 0.005% of the total signal

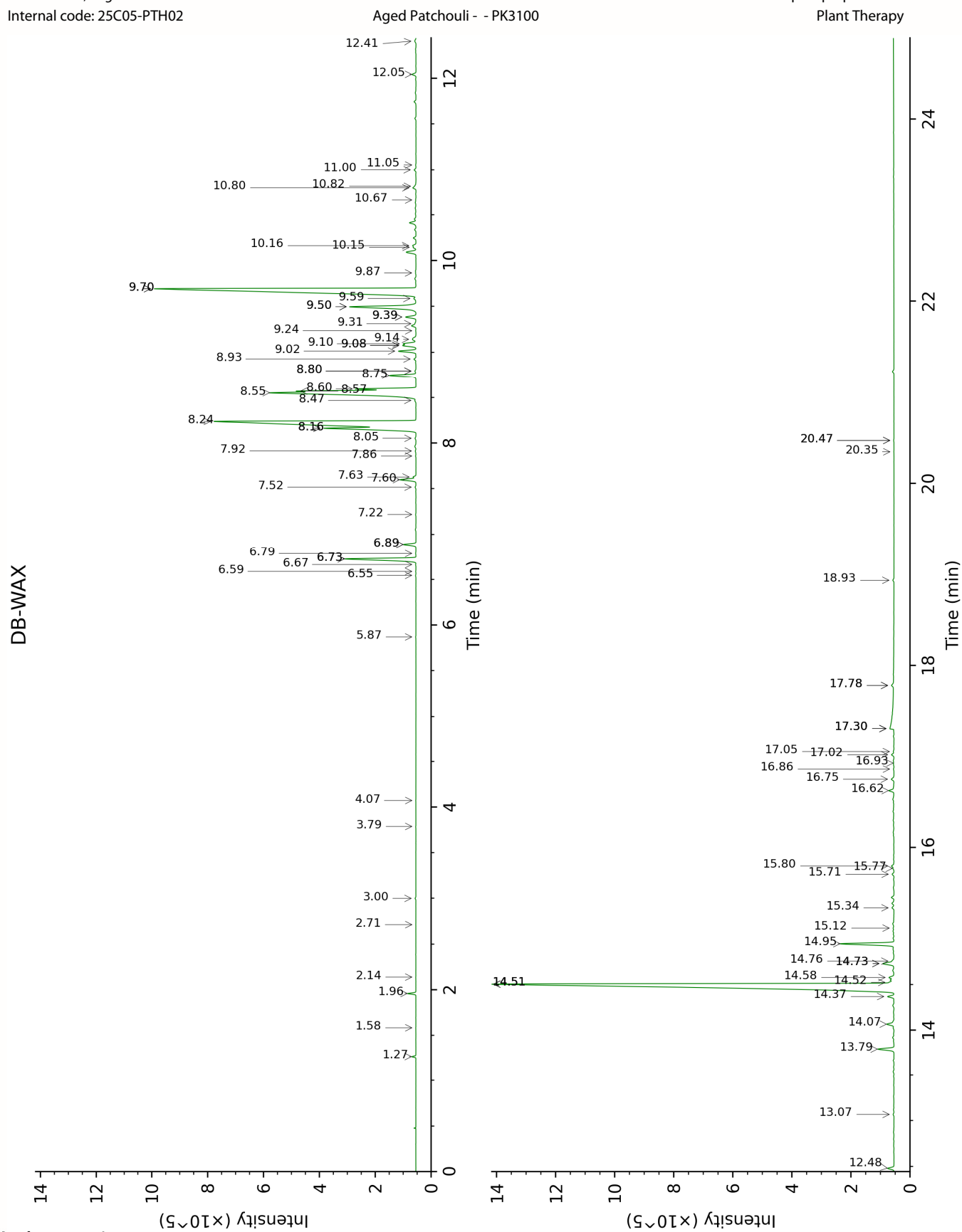
Note: no correction factor was applied

About "consolidated" data: The table above presents the breakdown of the sample volatile constituents after applying an algorithm to collapse data acquired from the multi-columns system of PhytoChemia into a single set of consolidated contents. In case of discrepancies between columns, the algorithm is set to prioritize data from the most standard DB-5 column, and smallest values so as to avoid overestimating individual content. This process is semi-automatic. Advanced users are invited to consult the "Full analysis data" table after the chromatograms in this report to access the full untreated data and perform their own calculations if needed.

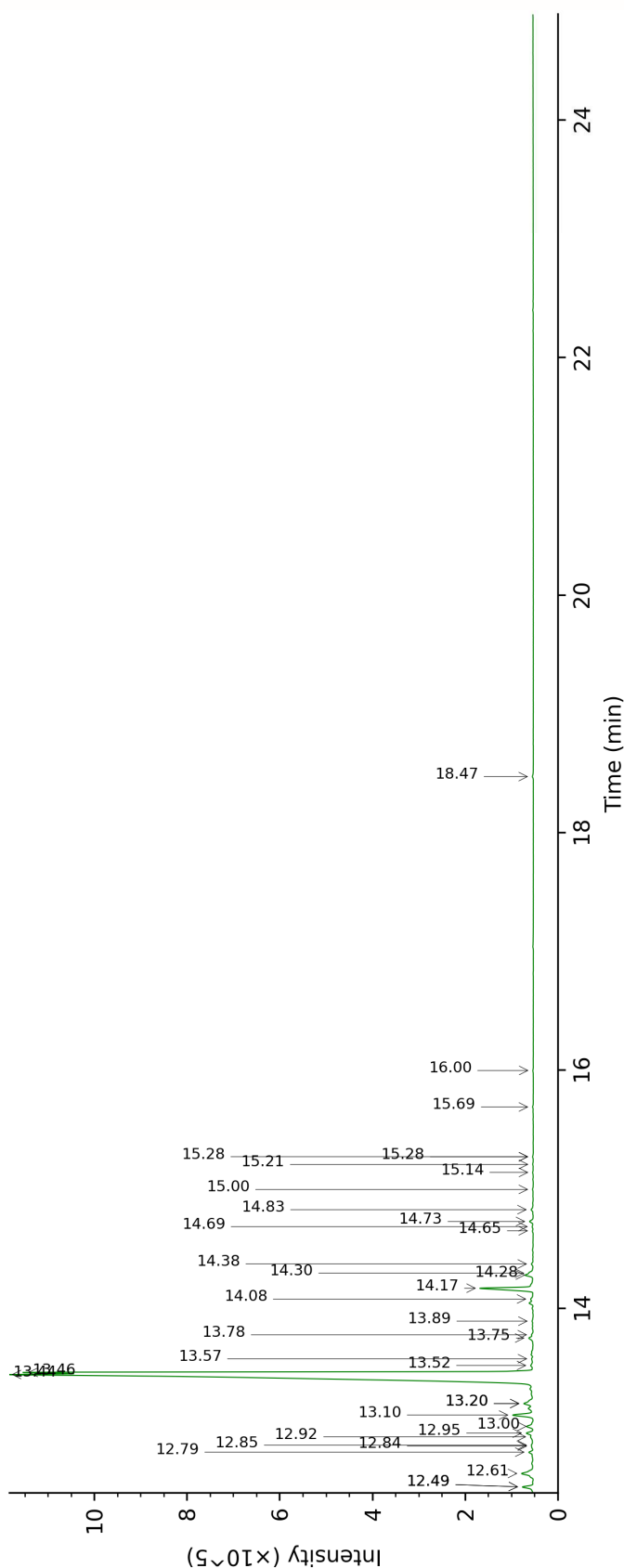
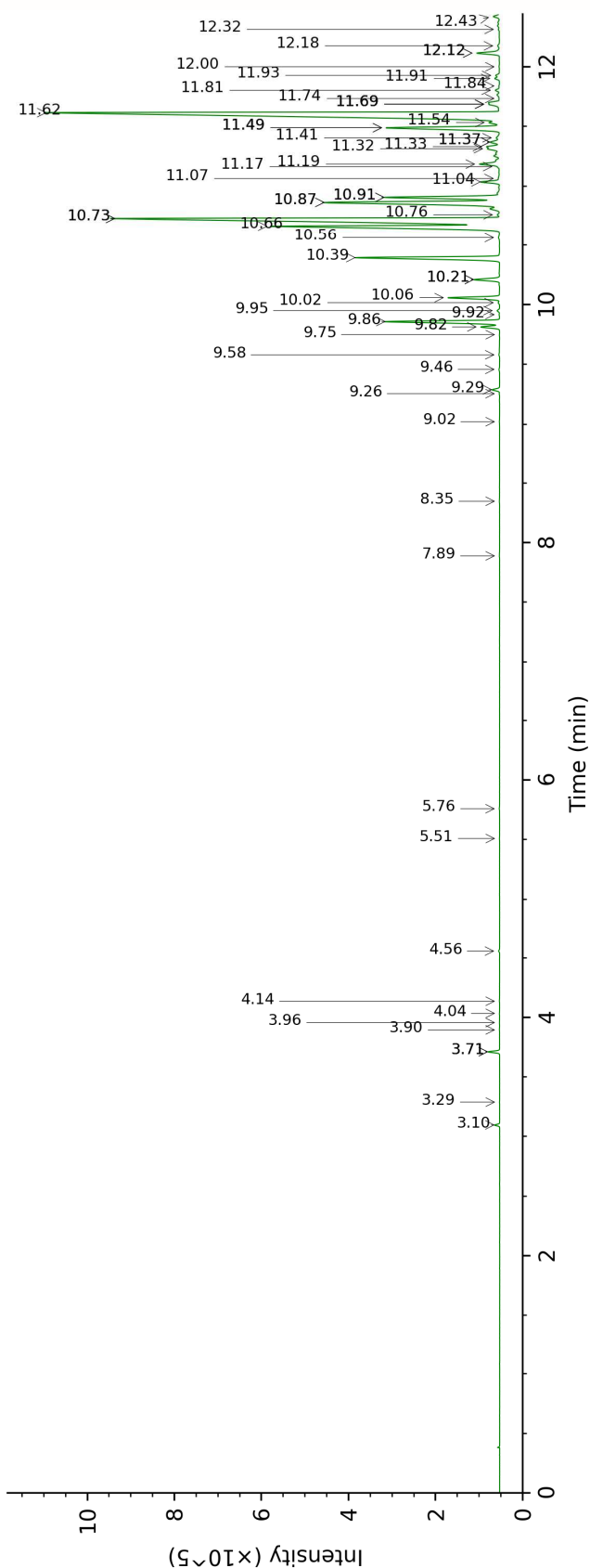
Unknowns: Unknown compounds' mass spectral data is presented in the "Full analysis data" table. The occurrence of unknown compounds is to be expected in many samples, and does not denote particular problems unless noted otherwise in the conclusion.

Bracketed value ([xx]): A bracketed percent value indicate that two or more compound percentage could not be solved due to coelution.

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DB-5



FULL ANALYSIS DATA

α-Pinene	Column DB-WAX			Column DB-5		
	1.27	990.7	0.09	3.10	931.3	0.09
Camphene	1.58	1027.4	tr	3.29	944.0	tr
Sabinene	2.14	1084.0	tr	3.71*	972.1	[0.21]
β -Pinene	1.96	1065.7	0.21	3.71*	972.1	[0.21]
Octen-3-ol	6.59	1423.6	0.01	3.90	984.3	tr
Octan-3-one	3.79	1219.7	0.01	3.96	988.4	tr
Myrcene	2.71	1134.1	tr	4.04	993.5	tr
Octan-3-ol	5.87	1371.0	0.01	4.14	1000.3	0.01
Limonene	3.00	1157.2	0.02	4.56	1027.0	0.02
Terpinolene	4.07	1241.0	0.01	5.51	1086.8	tr
Linalool	7.86	1519.5	0.01	5.76	1102.5	0.01
Neral	9.24	1628.2	0.01	7.89	1240.2	0.01
Geranial	9.87	1679.8	0.02	8.35	1271.0	0.01
Unknown POCA I [m/z 159, 117 (68), 132 (55), 200 (35)]	6.89*	1446.2	[0.42]	9.02	1316.7	0.01
δ -Elemene isomer	6.66	1429.3	0.01	9.26	1333.3	0.01
δ -Elemene	6.73*	1434.0	[2.88]	9.29	1335.6	0.17
α -Cubebene	6.55	1420.4	0.01	9.46	1347.6	0.02
Eugenol	14.52	2101.0	0.10	9.58	1356.2	0.03
α -Ylangene	6.79	1438.4	0.01	9.75	1368.1	0.01
α -Copaene	6.89*	1446.2	[0.42]	9.82	1372.7	0.42
β -Patchoulene	6.73*	1434.0	[2.88]	9.86	1375.9	2.72
β -Bourbonene	7.22	1470.9	0.01	9.92	1379.9	0.01
<i>cis</i> - β -Elemene	8.05	1534.7	0.03	9.95	1382.3	0.06
β -Cubebene	7.52	1493.3	0.03	10.02	1387.0	0.03
β -Elemene	8.16*†	1543.3	[4.16]	10.06	1389.9	1.15
Cycloseychellene	7.60	1499.4	0.59	10.21*	1400.6	[0.60]
Isocaryophyllene	7.92	1523.8	0.03	10.21*	1400.6	[0.60]
β -Caryophyllene	8.16*†	1543.3	[4.16]	10.40	1414.0	3.59
γ -Elemene	8.80*	1592.7	[0.04]	10.56	1426.6	0.04
Seychellene	8.57†	1575.1	3.03	10.66	1434.2	6.47
α -Guaiene	8.24†	1549.1	14.55	10.73*	1439.0	[14.01]
Selina-5,11-diene	8.47	1567.1	0.04	10.73*	1439.0	[14.01]
Unknown POCA III [m/z 91, 93 (98), 79 (82), 81 (82), 105 (71), 107 (70)... 204 (38)]	8.93	1603.0	0.07	10.76	1441.3	0.05
α -Humulene	9.02	1610.1	0.62	10.86*†	1449.1	[5.35]
α -Patchoulene	8.55†	1573.7	8.17	10.86*†	1449.1	[5.35]
Patchoulene	8.75	1589.0	0.97	10.91*	1452.3	[2.82]

analog IV (Improperly reported as γ - patchoulene)						
δ -patchoulene	8.60	1577.0	1.70	10.91*	1452.3	[2.82]
9-epi- β - Caryophyllene	9.10	1616.6	0.42	11.04	1461.9	0.43
Unknown POCA IV [m/z 159, 91 (88), 93 (72), 79 (69), 105 (68), 41 (66), 81 (54), 202? (50)...]	9.08*	1615.1	[0.47]	11.07	1464.1	0.02
Selina-4,11-diene	9.14	1620.6	0.21	11.17	1471.5	0.03
Unknown POCA V [m/z 147, 93 (87), 107 (77), 105 (77), 91 (73), 79 (63)... 204 (21)]	9.08*	1615.1	[0.47]	11.19	1473.1	0.56
Patchoulene analog II	9.50*	1649.7	[3.22]	11.32	1482.7	0.28
Unknown POCA VI [m/z 79, 107 (99), 91 (88), 93 (86), 81 (78), 105 (73), 41 (73)... 204? (12)]	9.39*	1640.5	[0.40]	11.33	1483.9	0.28
δ -Selinene	9.39*	1640.5	[0.40]	11.37*	1486.9	[0.26]
Unknown POCA VII [m/z 161, 189 (96), 91 (74), 204 (73), 105 (69), 41 (52)]	9.59	1657.0	0.09	11.37*	1486.9	[0.26]
α -Selinene	9.70*	1665.7	[18.78]	11.41	1489.5	0.10
Eudesma- 2,4(15),11-triene	10.80	1758.8	0.12	11.49*†	1495.8	[3.20]
Aciphyllene	9.50*	1649.7	[3.22]	11.49*†	1495.8	[3.20]
Pentadecane	7.63	1501.6	0.08	11.54*†	1499.1	[0.25]
δ -Guaiene	9.70*	1665.7	[18.78]	11.62	1505.3	18.62
Nootkatene	10.67	1747.4	0.01	11.69*	1510.8	[0.23]
γ -Cadinene	10.15	1702.6	0.09	11.69*	1510.8	[0.23]
7-epi- α -Selinene	10.16	1704.1	0.12	11.69*	1510.8	[0.23]
Unknown POCA XLV [m/z 159, 91 (81), 117 (68), 131	9.31	1634.5	0.03	11.74	1514.6	0.01

(51), 105 (46)...						
202 (37)]						
Unknown POCA IX [m/z 41, 67 (95), 93 (92), 107 (91), 55 (77), 81 (77), 79 (73)... 205 (17)...	11.00	1775.6	0.07	11.81	1520.1	0.10
Unknown POCA X [m/z 161, 119 (92), 91 (69), 105 (52), 145 (49)... 218 (6)]	11.05	1780.1	0.01	11.84	1522.9	0.02
Unknown POCA XI [m/z 91, 105 (98), 108 (83), 93 (82), 133 (79), 77 (64), 79 (57), 41 (56), 145 (55)... 218? (5)]				11.91	1527.8	0.11
Unknown POCA XII [m/z 91, 105 (78), 93 (77), 107 (71), 79 (64), 41 (63), 77 (63), 145 (60)... 218 (17)]				11.93	1529.8	0.09
Unknown POCA XIII [m/z 145, 131 (91), 91 (86), 105 (68), 146 (66), 43 (54)... 220? (5)]				12.00	1535.5	0.01
Norpatchoulénol	13.79	2030.2	0.59	12.12*	1544.5	[0.57]
α-Elemol				12.12*	1544.5	[0.57]
Germacrene B	10.82	1760.2	0.04	12.18	1549.3	0.05
Unknown POCA XV [m/z 41, 67 (90), 55 (87), 79 (85), 107 (84), 81 (84), 93 (84), 121 (77), 91 (74)... 220 (7)]				12.32	1560.2	0.02
Unknown POCA XVI [m/z 43, 107 (94), 81 (71), 41 (63), 67 (58), 111	12.05	1867.7	0.14	12.43	1568.7	0.14

(58), 93 (55), 83 (54)... 205 (8), 220 (1)]						
Caryophyllene oxide	12.48	1906.8	0.22	12.49*	1574.1	[0.28]
Caryophyllene oxide isomer	12.41	1900.5	0.06	12.49*	1574.1	[0.28]
Unknown POCA XVII [m/z 43, 79 (44), 81 (41), 93 (40), 91 (40)... 220 (5)]	14.07	2056.7	0.31	12.61	1583.0	0.32
Unknown POCA XVIII [m/z 43, 105 (77), 91 (71), 93 (68), 41 (62), 107 (6)... 205 (41), 220 (7)]	14.37	2086.1	0.22	12.79	1597.0	0.10
Hexadecane	8.80*	1592.7	[0.04]	12.84	1601.0	0.03
Humulene epoxide II	13.07	1961.8	0.03	12.85	1601.7	0.04
Unknown POCA XIX [m/z 43, 161 (73), 91 (53), 95 (52), 79 (46), 119 (45)... 205 (29), 220? (1)]	14.51*	2099.2	[28.24]	12.92	1607.3	0.08
Unknown POCA XX [m/z 41, 91 (92), 55 (81), 93 (81), 79 (74), 43 (71), 95 (68), 123 (65)... 220 (17)]	14.58	2106.4	0.20	12.95	1609.8	0.18
Unknown POCA XXI [m/z 43, 79 (41), 93 (39), 41 (39), 91 (38), 81 (36)... 220 (3)]	14.73*	2121.8	[0.51]	13.00	1614.5	0.17
Unknown POCA XXII [m/z 41, 55 (92), 95 (80), 81 (76), 109 (76), 67 (66), 125 (65)... 220 (12)]	14.51*	2099.2	[28.24]	13.10	1622.4	0.54
Hinesol	14.73*	2121.8	[0.51]	13.20*	1630.4	[0.26]

Caryophylladienol II	15.71	2221.2	0.07	13.20*	1630.4	[0.26]
Patchoulol	14.51*	2099.2	[28.24]	13.44*†	1650.5	[21.84]
Pogostol	14.95	2143.7	1.96	13.46*†	1652.0	[8.37]
Unknown POCA XXIII [m/z 175, 218 (59), 133 (49), 91 (43), 41 (38), 147 (36)]	14.76	2124.5	0.06	13.52	1656.8	0.04
Unknown POCA XXIV [m/z 43, 41 (87), 91 (64), 55 (63), 81 (58), 95 (54), 107 (52)... 222 (12)]				13.57	1661.5	0.02
Unknown POCA XXV [m/z 95, 107 (99), 41 (85), 93 (82), 91 (82), 109 (71), 105 (71), 105 (71), 108 (66)... 220 (29)]	15.80	2230.6	0.10	13.75	1676.5	0.13
Unknown POCA XXVI [m/z 91, 41 (100), 107 (98), 108 (95), 95 (87), 93 (87), 105 (85), 79 (77), 119 (72)... 220? (15)]	15.77	2227.9	0.04	13.78	1678.7	0.03
Unknown POCA XXVII [m/z 43, 41 (95), 97 (89), 109 (71), 55 (71), 107 (70), 95 (69), 110 (65)... 222 (5)]	15.12	2161.0	0.03	13.90	1688.2	0.03
Rotundone	15.34	2183.3	0.08	14.08	1703.5	0.07
Pogostone	17.30*	2391.5	[1.04]	14.17	1711.3	1.29
Unknown POCA XXIX [m/z 107, 93 (87), 41 (83), 81 (82), 67 (80), 55 (76)... 204 (53), 207 (34), 222 (9)]	16.62	2317.8	0.21	14.28	1720.9	0.18
Unknown POCA XXX [m/z 83, 43	16.75	2331.3	0.11	14.30	1722.3	0.07

(85), 55 (39), 41 (29), 121 (27), 120 (25)... 218 (3)]						
Unknown POCA XXXI [m/z 133, 148 (68), 147 (59), 91 (56), 79 (45), 105 (44)... 218 (8)]	16.86	2343.4	0.02	14.38	1729.0	0.03
Unknown POCA XXXIII [m/z 134, 107 (96), 91 (84), 93 (78), 79 (77), 41 (74), 43 (66), 77 (65)...]	17.05	2364.2	0.03	14.65	1753.2	0.03
Unknown POCA XXXIV [m/z 43, 191 (68), 41 (62), 91 (51), 95 (49), 110 (44)... 234 (22)]				14.69	1756.2	0.04
Unknown POCA XXXV [m/z 91, 105 (88), 95 (79), 93 (78), 81 (72), 79 (66)... 205 (33), 220 (7)...]	17.30*	2391.5	[1.04]	14.73	1760.0	0.10
Unknown POCA XXXVI [m/z 149, 131 (54), 105 (48), 91 (46), 41 (30), 93 (27)... 218 (23)]	17.02	2360.5	0.09	14.83	1768.6	0.07
Unknown POCA XXXVII [m/z 43, 95 (58), 67 (50), 41 (47), 55 (38), 109 (37)... 221 (9)... 236? (3)]	17.78*	2445.4	[0.08]	15.00	1783.4	0.02
Unknown POCA XXXVIII [m/z 219, 43 (67), 91 (46), 79 (42), 41 (41), 55 (36)... 234 (6)]	17.78*	2445.4	[0.08]	15.14	1795.7	0.02
Unknown POCA XL [m/z 43, 91 (77), 79 (74), 109	17.30*	2391.5	[1.04]	15.21	1801.6	0.02

(73), 110 (71)...						
218 (52), 234? (1)]						
Unknown POCA						
XLII [m/z 91, 41						
(79), 43 (74), 79						
(72), 105 (65), 77	16.93	2350.5	0.01	15.28*	1807.3	[0.02]
(64), 147 (64), 93						
(61)... 218 (26),						
234 (14)]						
Unknown POCA						
XXXIX [m/z 43, 91						
(43), 41 (37), 79	20.35	2749.1	0.01	15.28*	1807.3	[0.02]
(32), 219 (31)...						
234 (14)]						
Unknown POCA						
XLIV [m/z 41, 110						
(77), 55 (75), 69						
(74), 43 (74), 95	20.47*	2764.5	[0.01]	15.69	1845.3	0.02
(71), 97 (71), 123						
(71), 67 (63), 136						
(56)... 236? (7)]						
Corymbolone	20.47*	2764.5	[0.01]	16.00	1873.2	0.01
Phytol	18.94	2577.8	0.04	18.47	2112.0	0.03
Total reported		96.55%			98.10%	

*: Two or more compounds are coeluting on this column

[xx]: Duplicate percentage due to coelutions, only the first one is taken into account in the consolidated total

†: Peaks apexes were resolved, but peaks overlapped and were summed for analysis

tr: The compound has been detected below 0.005% of total signal.

Note: no correction factor was applied

R.T.: Retention time (minutes)

R.I.: Retention index