PhytoChemia

Date : 2026-11-09

Certificate of Analysis - GC Profiling

Sample Identification

Internal code : 26J06-PTH04
Customer Identification : Copaiba Oleoresin - Brazil - CJ0124
Type : Resin
Source : *Copaifera officinalis*
Customer : Plant Therapy

Checked and approved by:

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

Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia. This report is digitally signed, it is only considered valid if the digital signature is intact. The results only describe the samples that were submitted to the assays. The compliance status of the sample is provided to facilitate the reading of the report. The client remains ultimately responsible for reviewing the results presented within this report and to establish compliance of the tested batch against relevant quality criteria.

This report is an update from the first version issued on 2026-10-07 to correct the customer identification.

Méthode certifiée ISO 17025:2017 Certified Method

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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 : Jean-Christophe Fortin, M. Sc.
Date : 2026-10-07

Physicochemical data

Physical aspect : Yellow viscous liquid
Analyst : Cindy Caron B. Sc.
Date : 2026-10-07

Refractive index : 1.5087 ± 0.0003 (20 °C)
Method : PC-MAT-016 - Measure of the refractive index of a liquid.
Analyst : Cindy Caron B. Sc.
Date : 2026-10-07

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
(2*E*,4*E*)-3,7-Dimethylocta-2,4-diene?	0.02	Monoterpene
(*Z*)-β-Ocimene	0.08	Monoterpene
(*E*)-β-Ocimene	0.01	Monoterpene
all*o*-Ocimene	0.02	Monoterpene
δ-Elemene	0.44	Sesquiterpene
δ-Elemene isomer	0.02	Sesquiterpene
α-Cubebene	0.61	Sesquiterpene
Cyclosativene I	0.07	Sesquiterpene
Cyclosativene II	0.01	Sesquiterpene
α-Ylangene	0.08	Sesquiterpene
α-Copaene	4.22	Sesquiterpene
cis-β-Elemene	0.04	Sesquiterpene
β-Cubebene	0.36	Sesquiterpene
β-Elemene	1.48	Sesquiterpene
Cyperene	0.29	Sesquiterpene
α-Gurjunene	0.04	Sesquiterpene
Sesquithujene	0.02	Sesquiterpene
β-Ylangene	0.10	Sesquiterpene
β-Caryophyllene	29.15	Sesquiterpene
β-Copaene	0.16	Sesquiterpene
γ-Elemene	0.67	Sesquiterpene
β-Humulene	0.10	Sesquiterpene
trans-α-Bergamotene	4.62	Sesquiterpene
Aromadendrene	0.14	Sesquiterpene
Sesquisabinene A	0.24	Sesquiterpene
α-Humulene	4.07	Sesquiterpene
all*o*-Aromadendrene	0.39	Sesquiterpene
cis-Muurola-4(15),5-diene	0.09	Sesquiterpene
(*E*)-β-Farnesene	0.30	Sesquiterpene
trans-Cadina-1(6),4-diene	0.24	Sesquiterpene
Germacrene D	7.66	Sesquiterpene
γ-Muurolene	2.03	Sesquiterpene
β-Selinene	1.04	Sesquiterpene
ar-Curcumene	0.38	Sesquiterpene
δ-Selinene	0.05	Sesquiterpene
Viridiflorene	0.06	Sesquiterpene

α-Selinene	0.92	Sesquiterpene
epi-Cubebol	0.07	Sesquiterpenic alcohol
Bicyclogermacrene	0.60	Sesquiterpene
Caparratriene	0.11	Sesquiterpene
α-Muurolene	0.47	Sesquiterpene
δ-Guaiene	0.48	Sesquiterpene
γ-Cadinene	0.90	Sesquiterpene
β-Curcumene	0.02	Sesquiterpene
β-Bisabolene	3.79	Sesquiterpene
(3*E*,6*E*)-α-Farnesene	0.07	Sesquiterpene
Cubebol	0.08	Sesquiterpenic alcohol
β-Sesquiphellandrene	0.26	Sesquiterpene
trans-Calamenene	0.08	Sesquiterpene
δ-Cadinene	2.74	Sesquiterpene
trans-Cadina-1,4-diene	0.28	Sesquiterpene
α-Cadinene	0.19	Sesquiterpene
α-Calacorene	0.16	Sesquiterpene
Isocaryophyllene epoxide B	0.01	Sesquiterpenic ether
(*E*)-α-Bisabolene	0.41	Sesquiterpene
Germacrene B	2.57	Sesquiterpene
Maaliol	0.15	Sesquiterpenic alcohol
β-Calacorene	0.15	Sesquiterpene
Caryophyllenyl alcohol	0.10	Sesquiterpenic alcohol
Spathulenol	0.04	Sesquiterpenic alcohol
Caryophyllene oxide isomer	0.01	Sesquiterpenic ether
Caryophyllene oxide	0.15	Sesquiterpenic ether
Globulol	0.07	Sesquiterpenic alcohol
Viridiflorol	0.07	Sesquiterpenic alcohol
Ledol	0.12	Sesquiterpenic alcohol
Humulene epoxide II	0.02	Sesquiterpenic ether
Junenol	1.16	Sesquiterpenic alcohol
Unknown	0.08	Oxygenated sesquiterpene
Rosifoliol	0.03	Sesquiterpenic alcohol
1-epi-Cubenol	0.11	Sesquiterpenic alcohol
Caryophylladienol II	0.03	Sesquiterpenic alcohol
τ-Muurolol	0.39	Sesquiterpenic alcohol
τ-Cadinol	0.28	Sesquiterpenic alcohol
α-Muurolol	0.31	Sesquiterpenic alcohol
Unknown	0.10	Oxygenated sesquiterpene
Unknown	0.18	Sesquiterpenic alcohol
α-Cadinol	0.51	Sesquiterpenic alcohol

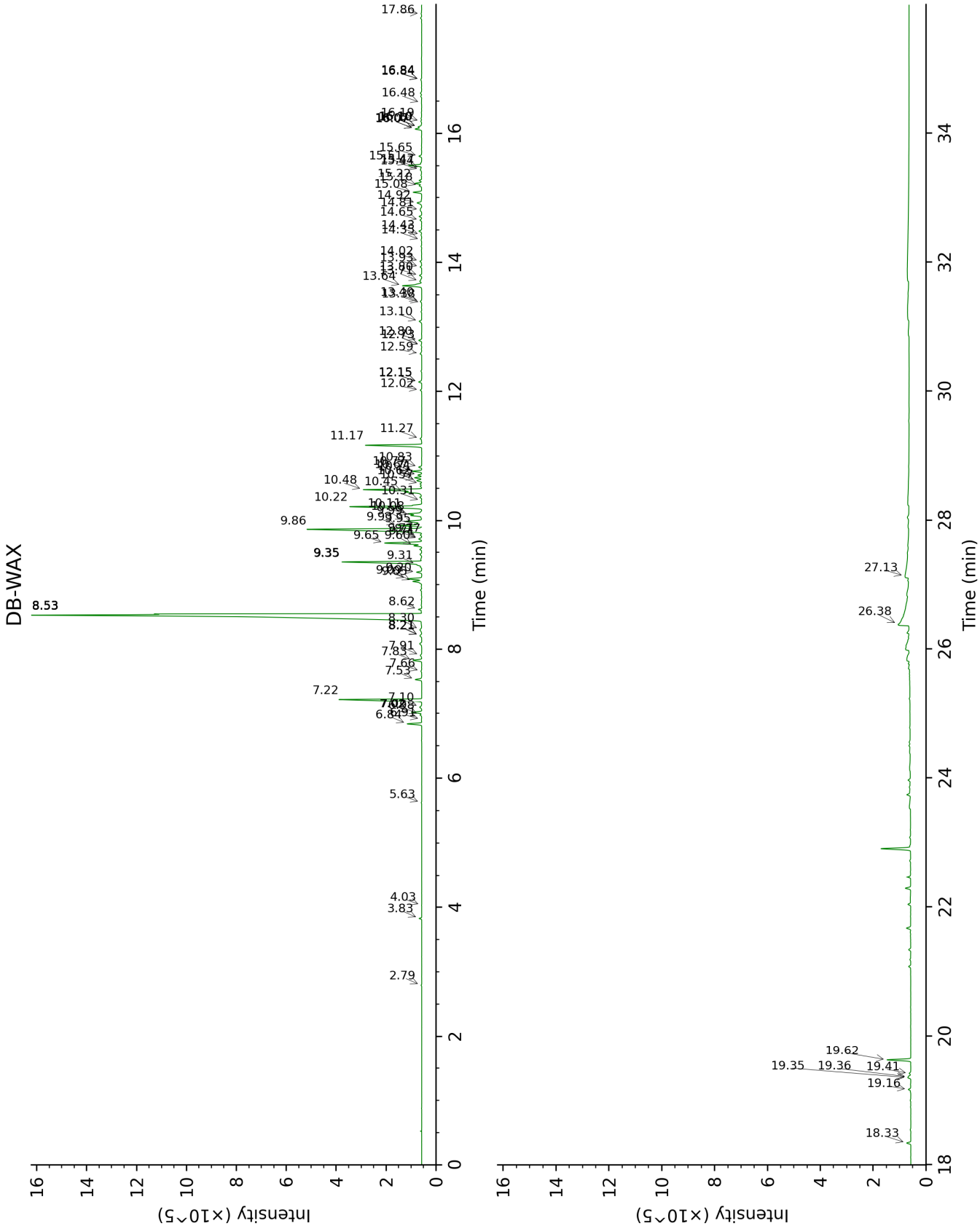
cis-Calamenen-10-ol	0.02	Sesquiterpenic alcohol
Selin-11-en-4α-ol	0.13	Sesquiterpenic alcohol
(3*Z*)-Caryophylla-3,8(13)-dien-5β-ol	0.04	Sesquiterpenic alcohol
Cadalene	0.05	Sesquiterpene
Germacra-4(15),5,10(14)-trien-1α-ol	0.05	Sesquiterpenic alcohol
α-Bisabolol	0.03	Sesquiterpenic alcohol
Juniper camphor	0.26	Sesquiterpenic alcohol
Aromadendrane-4,10-diol	0.01	Sesquiterpenic alcohol
Methyl (*E*,*E*)-farnesate?	0.01	Sesquiterpenic ester
Unknown	0.06	Oxygenated diterpene
Unknown	0.10	Diterpene
Unknown	0.19	Oxygenated diterpene
Palmitic acid	0.27	Aliphatic acid
Unknown	0.14	Oxygenated diterpene
Unknown	0.02	Oxygenated diterpene
cis-3,14-Clerodadien-13-ol	0.12	Diterpenic alcohol
Unknown	0.07	Oxygenated diterpene
Manool	0.12	Diterpenic alcohol
Kolavelool	1.01	Diterpenic alcohol
Linoleic acid	0.12	Aliphatic acid
Oleic acid	0.11	Aliphatic acid
Stearic acid	0.19	Aliphatic acid
3α-Hydroxymanool	1.80	Diterpenic alcohol
Copalol	1.00	Diterpenic alcohol
Kolavenol	0.16	Diterpenic alcohol
Methyl copalate?	0.14	Diterpenic ester
Copaifera diterpenic acid I	4.17	Diterpenic acid
Methyl kolavenate	0.52	Diterpenic ester
Copaifera diterpenic acid II	1.96	Diterpenic acid
Kolavenyl acetate?	0.89	Diterpenic ester
Methyl hardwickiiate?	0.11	Diterpenic ester
Copaifera diterpenic acid III	1.31	Diterpenic acid
Copaifera diterpenic acid IV	2.44	Diterpenic acid
Copaifera diterpenic acid V	0.39	Diterpenic acid
Copaifera diterpenic acid IX	0.03	Diterpenic acid
Copaifera diterpenic acid VI	1.35	Diterpenic acid
Copaifera diterpenic acid VII	0.18	Diterpenic acid
Copaifera diterpenic acid VIII	0.37	Diterpenic acid
Consolidated total	97.48	

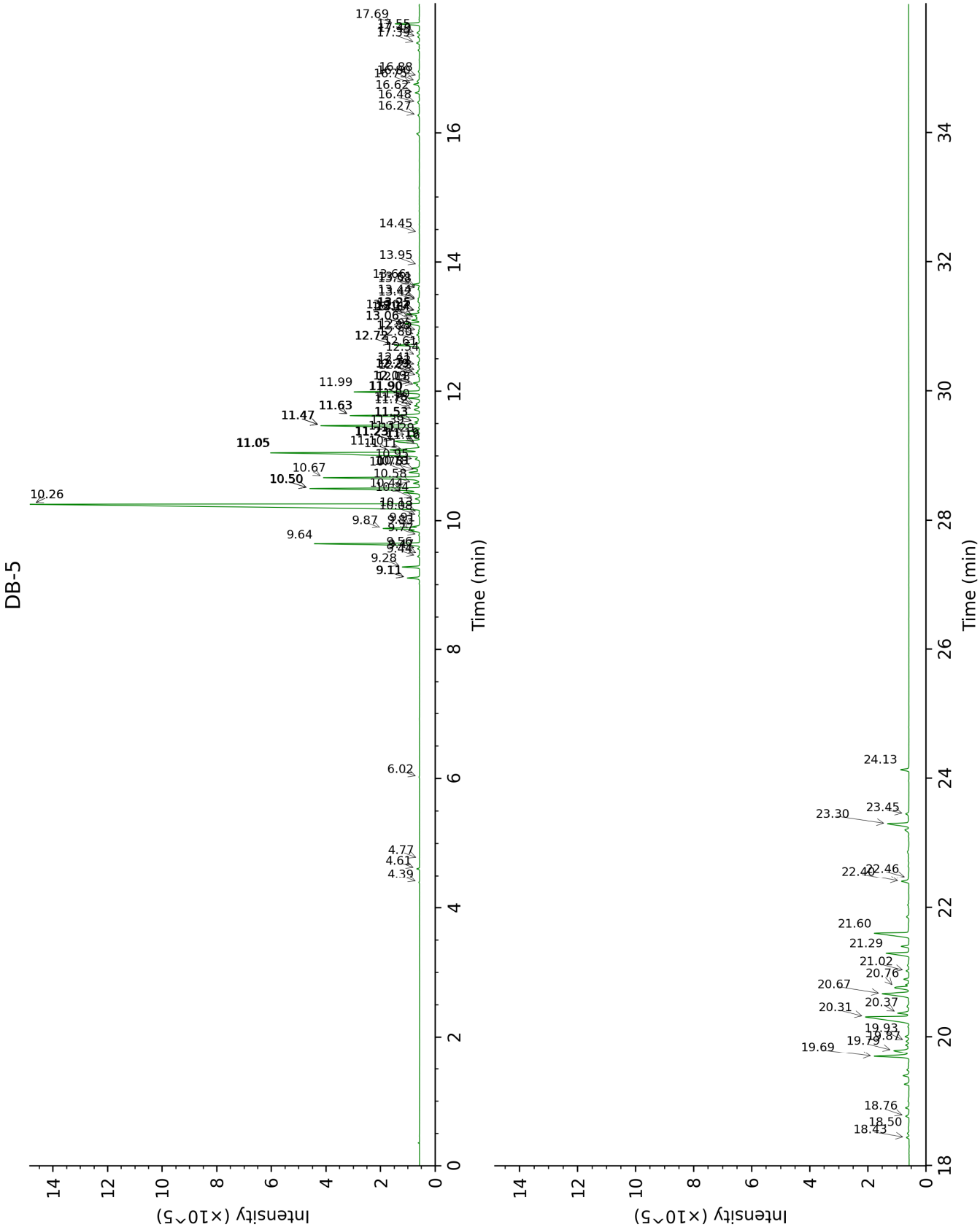
tr: The compound has been detected below 0.005% of the total signal

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-WAX
Intensity (×10^5)
Time (min)
8.53
9.35
9.86
7.22
11.17
27.13
26.38
19.62
19.35
19.36
19.41
19.16
18.33


DB-5
Time (min)
Intensity (×10^5)
17.69
16.62
16.48
16.27
14.45
13.95
11.99
11.90
11.63
11.47
11.05
10.67
10.50
10.26
9.87
9.64
9.28
9.11
6.02
4.77
4.61
4.39
24.13
23.45
23.30
22.46
22.40
21.60
21.29
21.02
20.76
20.67
20.37
20.31
19.93
19.87
19.79
19.69
18.76
18.50
18.43

Full analysis data

(2*E*,4*E*)-3,7-Dimethylocta-2,4-diene?	Column DB-WAX			Column DB-5		
	2.79	1122.6	0.02	4.39	1026.3	0.02
(*Z*)-β-Ocimene	3.83	1203.8	0.09	4.61	1040.2	0.08
(*E*)-β-Ocimene	4.03	1218.9	0.01	4.77	1050.1	0.01
all*o*-Ocimene	5.63	1332.7	0.02	6.02	1130.5	0.02
δ-Elemene	7.02*	1433.6	[0.46]	9.11*	1335.4	[0.46]
δ-Elemene isomer	6.91	1425.5	0.02	9.11*	1335.4	[0.46]
α-Cubebene	6.84	1420.4	0.66	9.28	1347.5	0.61
Cyclosativene I	6.98	1430.6	0.09	9.44	1359.1	0.07
Cyclosativene II	7.02*	1433.6	[0.46]	9.47	1361.4	0.01
α-Ylangene	7.10	1439.5	0.13	9.56	1367.6	0.08
α-Copaene	7.22	1449.0	4.58	9.64	1373.1	4.22
cis-β-Elemene	8.30	1530.3	0.16	9.77	1382.4	0.04
β-Cubebene	7.83	1493.9	0.42	9.83	1387.3	0.36
β-Elemene	8.53*	1547.8	[38.21]	9.87	1390.0	1.48
Cyperene	7.53	1471.9	0.32	9.91	1392.6	0.29
α-Gurjunene	7.66	1481.4	0.04	10.08	1404.7	0.04
Sesquithujene	8.21*	1523.1	[0.12]	10.13	1408.7	0.02
β-Ylangene	8.21*	1523.1	[0.12]	10.26*	1418.0	[29.26]
β-Caryophyllene	8.53*	1547.8	[38.21]	10.26*	1418.0	[29.26]
β-Copaene	8.53*	1547.8	[38.21]	10.34	1424.3	0.16
γ-Elemene	9.09	1591.2	0.68	10.44	1431.5	0.67
β-Humulene	7.91	1499.6	0.10	10.50*	1436.3	[4.85]
trans-α-Bergamotene	8.53*	1547.8	[38.21]	10.50*	1436.3	[4.85]
Aromadendrene	8.62	1554.7	0.14	10.50*	1436.3	[4.85]
Sesquisabinene A	9.20	1599.3	0.23	10.58	1442.4	0.24
α-Humulene	9.35*	1612.2	[4.29]	10.67	1448.9	4.07
all*o*-Aromadendrene	9.05	1588.2	0.49	10.75	1455.1	0.39
cis-Muurola-4(15),5-diene	9.35*	1612.2	[4.29]	10.78	1457.6	0.09
(*E*)-β-Farnesene	9.60	1632.4	0.32	10.81	1459.9	0.30
trans-Cadina-1(6),4-diene	9.31	1608.9	0.20	10.95	1470.4	0.24
Germacrene D	9.86	1652.9	7.66	11.05*	1477.7	[8.55]
γ-Muurolene	9.65	1635.8	2.03	11.05*	1477.7	[8.55]
β-Selinene	9.93	1658.5	1.04	11.10	1481.1	1.04

ar-Curcumene	10.67	1719.4	0.31	11.11	1482.0	0.38
δ-Selinene	9.71*	1640.8	[0.15]	11.16	1486.2	0.05
Viridiflorene	9.71*	1640.8	[0.15]	11.19	1488.2	0.06
α-Selinene	9.99	1663.8	0.92	11.23*	1491.1	[1.50]
epi-Cubebol	12.02	1835.8	0.07	11.23*	1491.1	[1.50]
Bicyclogermacrene	10.11	1673.1	0.60	11.23*	1491.1	[1.50]
Caparratriene	9.77	1645.7	0.06	11.28	1495.3	0.11
α-Muurolene	10.08	1671.2	0.49	11.31	1497.4	0.47
δ-Guaiene	9.95	1660.5	0.18	11.39	1503.2	0.48
γ-Cadinene	10.45	1700.7	0.90	11.47*	1509.4	[4.20]
β-Curcumene	10.31	1689.4	0.02	11.47*	1509.4	[4.20]
β-Bisabolene	10.22	1682.1	3.79	11.47*	1509.4	[4.20]
(3*E*,6*E*)-α-Farnesene	10.57	1711.4	0.07	11.53*	1513.9	[0.17]
Cubebol	12.58	1885.5	0.08	11.53*	1513.9	[0.17]
β-Sesquiphellandrene	10.62	1715.6	0.26	11.63*	1521.7	[3.06]
trans-Calamenene	11.27	1770.5	0.08	11.63*	1521.7	[3.06]
δ-Cadinene	10.48	1703.8	2.74	11.63*	1521.7	[3.06]
trans-Cadina-1,4-diene	10.71	1722.8	0.17	11.72	1529.0	0.28
α-Cadinene	10.83	1733.3	0.14	11.78	1533.7	0.19
α-Calacorene	12.15*	1846.9	[0.16]	11.80	1535.9	0.16
Isocaryophyllene epoxide B	12.15*	1846.9	[0.16]	11.90*	1543.1	[0.42]
(*E*)-α-Bisabolene	10.77	1727.9	0.41	11.90*	1543.1	[0.42]
Germacrene B	11.17	1762.0	2.78	11.99	1550.7	2.57
Maaliol	13.10	1932.3	0.14	12.09	1558.7	0.15
β-Calacorene	12.73*	1898.2	[0.04]	12.13*	1561.5	[0.25]
Caryophyllenyl alcohol	13.71	1989.2	0.10	12.13*	1561.5	[0.25]
Spathulenol	14.43	2057.6	0.04	12.23	1569.7	0.04
Caryophyllene oxide isomer	12.73*	1898.2	[0.04]	12.29*	1573.9	[0.15]
Caryophyllene oxide	12.80	1905.2	0.15	12.29*	1573.9	[0.15]
Globulol	13.93	2010.2	0.07	12.32	1576.3	0.07
Viridiflorol	14.02	2018.4	0.08	12.41	1583.5	0.07
Ledol	13.40	1960.6	0.08	12.54	1594.3	0.12
Humulene epoxide II	13.38	1958.3	0.01	12.61	1599.7	0.02

Junenol	13.64	1982.8	1.16	12.72*	1608.7	[1.07]
Unknown MECA V [m/z 179, 161 (66), 119 (44), 95 (38), 105 (35)... 204 (24), 222 (1)]	14.65	2079.4	0.08	12.72*	1608.7	[1.07]
Rosifoliol	14.35	2050.0	0.03	12.80	1615.4	0.03
1-epi-Cubenol	13.80	1997.7	0.11	12.88	1621.8	0.11
Caryophylladienol II	16.07*	2221.9	[0.32]	12.95	1627.7	0.03
τ-Muurolol	15.08	2121.9	0.39	13.06*	1636.3	[0.66]
τ-Cadinol	14.92	2105.4	0.28	13.06*	1636.3	[0.66]
α-Muurolol	15.22	2135.6	0.31	13.11	1640.6	0.31
Unknown COOF I [m/z 121, 95 (50), 59 (46), 93 (41), 81 (36), 67 (36)... 206 (18), 220? (1)]	14.81	2094.7	0.09	13.14	1643.0	0.10
Unknown cadinol analog II [m/z 95, 121 (73), 43 (57), 79 (43), 161 (43), 109 (40)... 204 (35), 222 (2)]	15.18	2132.0	0.12	13.17	1645.5	0.18
α-Cadinol	15.51	2164.5	0.62	13.20	1648.4	0.51
cis-Calamenen-10-ol	16.48	2263.7	0.02	13.25*	1652.2	[0.08]
Selin-11-en-4α-ol	15.65	2178.8	0.13	13.25*	1652.2	[0.08]
(3*Z*)-Caryophylla-3,8(13)-dien-5β-ol	16.84*	2301.5	[0.06]	13.42	1666.5	0.04
Cadalene	15.44	2157.8	0.08	13.44	1668.2	0.05
Germacra-4(15),5,10(14)-trien-1α-ol	16.10*	2225.3	[0.20]	13.58	1680.1	0.05
α-Bisabolol	15.47	2160.3	0.03	13.61	1682.4	0.03
Juniper camphor	16.07*	2221.9	[0.32]	13.66	1686.4	0.26
Aromadendrane-4,10-diol	16.84*	2301.5	[0.06]	13.95	1711.1	0.01
Methyl (*E*,*E*)-farnesate?				14.45	1754.6	0.01
Unknown COOF II	17.86	2412.5	0.04	16.28	1918.9	0.06

[m/z 43, 95 (66), 81 (63), 137 (61), 41 (53), 107 (47)... 262 (6)...]						
Unknown COOF III [m/z 95, 105 (79), 107 (75), 189 (68), 41 (64), 81 (61)... 257 (12), 272 (2)]	16.19	2234.4	0.05	16.48	1938.1	0.10
Unknown COOF IV [m/z 43, 95 (98), 107 (84), 93 (55), 121 (53)... 262 (7)...]	18.33	2465.7	0.20	16.62	1952.1	0.19
Palmitic acid				16.75†	1964.6	0.24
Unknown COOF V [m/z 95, 107 (61), 191 (46), 121 (45)...]	19.41	2589.9	0.08	16.80	1968.6	0.14
Unknown COOF VI [m/z 95, 107 (27), 81 (19), 191 (17), 55 (16)... 275 (1)...]	16.10*	2225.3	[0.20]	16.88	1976.3	0.02
cis-3,14-Clerodadien-13-ol	19.16	2560.9	0.13	17.39	2026.3	0.12
Unknown COOF VII [m/z 95, 191 (43), 71 (27), 55 (27)...]	19.36	2583.6	0.09	17.49	2035.8	0.07
Manool	19.35	2582.3	0.14	17.55	2041.9	0.12
Kolavelool	19.62	2615.1	1.12	17.69	2055.7	1.01
Linoleic acid				18.43	2130.6	0.12
Oleic acid				18.50	2137.5	0.11
Stearic acid				18.76	2164.9	0.19
3α-Hydroxymanool				19.69	2263.3	1.80
Copalol				19.78	2273.3	1.00
Kolavenol				19.87	2282.7	0.16
Methyl copalate?				19.93	2289.0	0.14
Copaifera diterpenic acid I	26.38	3534.2	3.95	20.31	2330.7	4.17
Methyl kolavenate				20.37	2337.0	0.52
Copaifera	27.13	3629.2	1.28	20.67	2370.6	1.96

diterpenic acid II						
Kolavenyl acetate?				20.76	2381.1	0.89
Methyl hardwickiiate?				21.02	2410.3	0.11
Copaifera diterpenic acid III				21.29	2442.0	1.31
Copaifera diterpenic acid IV				21.60	2477.7	2.44
Copaifera diterpenic acid V				22.40	2573.4	0.39
Copaifera diterpenic acid IX				22.46	2580.7	0.03
Copaifera diterpenic acid VI				23.30	2683.8	1.35
Copaifera diterpenic acid VII				23.45	2702.8	0.18
Copaifera diterpenic acid VIII				24.13	2790.2	0.37
Total reported		88.71%			95.50%	

*: 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