Date : 2026-02-23

Certificate of Analysis - GC Profiling

Sample Identification

Internal code : 26A13-PTH04
Customer Identification : Frankincense Serrata - India - F40118R
Type : Essential Oil
Source : *Boswellia serrata*
Customer : Plant Therapy

Checked an approved by:

Sylvain Mercier, M. Sc., Chimiste 2014-005

Notes: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.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 of the version first issued on 2026-01-15 to make a correction in the sample identification section.

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 : 2026-01-14

Physicochemical data

Refractive index : 1.4596 ± 0.0003 (20 °C)
Method : PC-MAT-016 - Measure of the refractive index of a liquid.
Analyst : Cindy Caron B. Sc.
Date : 2026-01-13

Conclusion

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

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Analysis Summary - Consolidated Contents

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

Identification	%	Class
(*E*)-2-Methyl-1,3-pentadiene	tr	Alkene
Toluene	0.02	Simple phenolic
Unknown	0.02	Unknown
Tricyclene	0.01	Monoterpene
Hashishene	0.11	Monoterpene
α-Thujene	70.82	Monoterpene
α-Pinene	5.90	Monoterpene
Unknown	0.27	Monoterpene
Camphene	0.08	Monoterpene
α-Fenchene	0.01	Monoterpene
Thuja-2,4(10)-diene	0.01	Monoterpene
3,7,7-Trimethylcyclohepta-1,3,5-triene	0.04	Monoterpene
β-Pinene	0.34	Monoterpene
Sabinene	5.38	Monoterpene
Myrcene	0.65	Monoterpene
2-Carene	0.01	Monoterpene
α-Phellandrene	1.23	Monoterpene
Δ3-Carene	3.46	Monoterpene
α-Terpinene	0.17	Monoterpene
meta-Cymene	0.07	Monoterpene
Carvomenthene	0.02	Aliphatic alcohol
para-Cymene	1.89	Monoterpene
Unknown	0.23	Unknown
Limonene	3.04	Monoterpene
β-Phellandrene	0.28	Monoterpene
(*Z*)-β-Ocimene	0.27	Monoterpene
Unknown	0.08	Unknown
(*E*)-β-Ocimene	0.13	Monoterpene
γ-Terpinene	0.25	Monoterpene
cis-Sabinene hydrate	0.09	Monoterpenic alcohol
Terpinolene	0.10	Monoterpene
para-Cymenene	0.01	Monoterpene
trans-Sabinene hydrate	0.07	Monoterpenic alcohol
Linalool	0.06	Monoterpenic alcohol
α-Thujone	0.03	Monoterpenic ketone
Unknown	0.20	Oxygenated monoterpene
β-Thujone	0.04	Monoterpenic ketone
cis-para-Menth-2-en-1-ol	0.10	Monoterpenic alcohol
Unknown	0.03	Unknown
allo-Ocimene	0.02	Monoterpene

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trans-Sabinol	0.05	Monoterpenic alcohol
trans-Verbenol	0.02	Monoterpenic alcohol
Unknown	0.03	Oxygenated monoterpene
Borneol	0.01	Monoterpenic alcohol
α-Phellandren-8-ol	0.02	Monoterpenic alcohol
cis-Sabinol	0.07	Monoterpenic alcohol
Umbellulone	0.03	Monoterpenic ketone
Terpinen-4-ol	0.37	Monoterpenic alcohol
meta-Cymen-8-ol	0.04	Monoterpenic alcohol
Cryptone	0.01	Normonoterpenic ketone
para-Cymen-8-ol	0.02	Monoterpenic alcohol
α-Terpineol	0.30	Monoterpenic alcohol
Methylchavicol	1.27	Phenylpropanoid
cis-α-Phellandrene epoxide (iPr vs Me)	0.02	Monoterpenic ether
trans-Piperitol	0.02	Monoterpenic alcohol
trans-Carveol	0.02	Monoterpenic alcohol
Cuminal	0.02	Monoterpenic aldehyde
Carvone	0.03	Monoterpenic ketone
Unknown	0.03	Unknown
Piperitone	0.01	Monoterpenic ketone
Linalyl acetate	0.01	Monoterpenic ester
Unknown	0.02	Oxygenated monoterpene
Bornyl acetate	0.03	Monoterpenic ester
Thymol	0.13	Monoterpenic alcohol
Carvacrol	0.02	Monoterpenic alcohol
para-Menth-5-en-1,2-diol isomer III	0.07	Monoterpenic alcohol
α-Terpinyl acetate	0.04	Monoterpenic ester
α-Ylangene	0.02	Sesquiterpene
α-Copaene	0.07	Sesquiterpene
β-Bourbonene	0.29	Sesquiterpene
1,5-diepi-β-Bourbonene	0.02	Sesquiterpene
β-Elemene	0.03	Sesquiterpene
Methyleugenol	0.10	Phenylpropanoid
β-Caryophyllene	0.02	Sesquiterpene
β-Ylangene	0.05	Sesquiterpene
β-Copaene	0.04	Sesquiterpene
trans-α-Bergamotene	0.04	Sesquiterpene
Isogermacrene D	0.03	Sesquiterpene
γ-Muurolene	0.03	Sesquiterpene
Germacrene D	0.07	Sesquiterpene
Unknown	0.08	Sesquiterpene
δ-Cadinene	0.10	Sesquiterpene
Elemicin	0.03	Phenylpropanoid
10-epi-γ-Eudesmol	0.01	Sesquiterpenic alcohol
α-Phellandrene dimer II	0.04	Diterpene

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(3*E*)-Cembrene A	0.03	Diterpene
Verticilla-4(20),7,11-triene	0.02	Diterpene
Cembrenol	0.02	Diterpenic alcohol
Serratol	0.08	Diterpenic alcohol
Consolidated total	**99.43**	

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)
12.43
11.55
11.52
11.41
11.12
11.04
10.88
10.59
10.40
10.37
10.16
10.01
9.90
9.84
9.79
9.75
9.70
9.56
9.55
9.32
9.16
8.98
8.90
8.58
8.41
8.32
8.24
8.13
8.09
7.98
7.45
7.37
7.34
7.11
7.01
6.91
6.33
6.26
6.07
5.58
4.28
4.11
3.99
3.81
3.79
3.28
3.19
2.96
2.88
2.78
2.59
2.45
2.40
2.29
2.10
1.71
1.64
1.47
1.38
1.25
0.48
20.08
19.59
16.39
15.55
15.51
15.38
15.20
14.17
13.33

DB-5
Intensity (×10^5)
Time (min)
12.14
11.67
11.11
11.09
11.06
10.54
10.60
10.40
10.26
10.21
10.12
9.90
9.80
9.69
9.62
9.34
8.82
8.78
8.67
8.40
8.12
8.01
7.89
7.75
7.67
7.41
7.24
7.12
7.09
6.97
6.89
6.85
6.75
6.67
6.64
6.59
6.50
6.25
6.19
6.09
5.97
5.91
5.80
5.81
5.62
5.53
5.40
5.05
4.94
4.83
4.76
4.67
4.46
4.41
4.39
4.35
4.27
4.17
4.07
4.02
3.94
3.61
3.54
3.30
3.21
3.18
3.03
2.99
2.79
2.64
1.13
0.56
18.59
18.45
17.18
16.68
14.92
12.78

FULL ANALYSIS DATA

(*E*)-2-Methyl-1,3-pentadiene	**Column DB-WAX**			**Column DB-5**		
	0.48	763.0	tr	0.56	631.3	tr
Toluene	1.47*	1002.7	[70.66]	1.13	759.4	0.02
Unknown BOFR II [m/z 93, 91 (72), 121 (58), 77 (49), 79 (41), 43 (22), 105 (20),107 (20), 41 (18), 136 (17), 92 (17)]				2.64	906.2	0.02
Tricyclene	1.25	970.6	0.01	2.79*	916.4	[0.12]
Hashishene	1.38*	991.3	[5.99]	2.79*	916.4	[0.12]
α-Thujene	1.47*	1002.7	[70.66]	2.99	929.7	70.82
α-Pinene	1.38*	991.3	[5.99]	3.03	932.6	5.90
Unknown SAOF I [m/z 91, 92 (47), 65 (11)... 134 (1)]	2.40*	1095.1	[0.27]	3.18	942.4	0.27
Camphene	1.71	1025.9	0.08	3.20*	944.0	[0.08]
α-Fenchene	1.64	1019.4	0.01	3.20*	944.0	[0.08]
Thuja-2,4(10)-diene	2.29*	1084.4	[5.37]	3.30	950.1	0.01
3,7,7-Trimethylcyclohepta-1,3,5-triene	2.88*	1133.5	[0.69]	3.54	966.5	0.04
β-Pinene	2.10	1065.1	0.34	3.61*	971.4	[5.72]
Sabinene	2.29*	1084.4	[5.37]	3.61*	971.4	[5.72]
Myrcene	2.88*	1133.5	[0.69]	3.94	993.2	0.65
2-Carene	2.40*	1095.1	[0.27]	4.02	999.1	0.01
α-Phellandrene	2.78	1125.5	1.22	4.07	1002.4	1.23
Δ3-Carene	2.59	1110.5	3.45	4.17	1008.4	3.46
α-Terpinene	2.96	1139.3	0.16	4.27	1014.9	0.17
meta-Cymene	4.11*	1227.9	[1.95]	4.35*	1020.0	[0.09]
Carvomenthene	2.45	1098.9	0.02	4.35*	1020.0	[0.09]
para-Cymene	4.11*	1227.9	[1.95]	4.39	1022.4	1.89
Unknown BODA IV [m/z 109, 43 (58), 95 (26)... 137 (15)...]	6.26*	1381.7	[0.25]	4.41	1024.0	0.23
Limonene	3.19	1157.5	3.04	4.46*	1027.2	[3.33]
β-Phellandrene	3.28	1164.4	0.28	4.46*	1027.2	[3.33]
(*Z*)-β-Ocimene	3.79	1204.2	0.26	4.67	1040.6	0.27
Unknown BOFR III [m/z 109, 43 (57), 91 (28), 67 (25), 93 (24), 95 (22), 77 (21), 137 (21), 41 (17), 79 (14)...]	7.37	1462.4	0.08	4.76	1046.2	0.08

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(*E*)-β-Ocimene	3.99	1219.1	0.13	4.83	1050.4	0.13
γ-Terpinene	3.81	1205.6	0.24	4.94	1057.6	0.25
cis-Sabinene hydrate	6.91	1429.0	0.10	5.05	1064.5	0.09
Terpinolene	4.28	1240.7	0.10	5.40*	1086.7	[0.11]
para-Cymenene	6.33*	1386.4	[0.16]	5.40*	1086.7	[0.11]
trans-Sabinene hydrate	7.98	1507.9	0.07	5.53	1095.1	0.07
Linalool	8.08	1516.3	0.06	5.62*	1101.2	[0.10]
α-Thujone	6.06	1367.5	0.03	5.62*	1101.2	[0.10]
Unknown BOSE I [m/z 109, 81 (54), 91 (32), 79 (22)...]	6.26*	1381.7	[0.25]	5.80	1112.5	0.20
β-Thujone	6.33*	1386.4	[0.16]	5.81	1113.4	0.04
cis-para-Menth-2-en-1-ol	8.13*	1519.7	[0.06]	5.91	1119.4	0.10
Unknown BOSE III [m/z 111, 43 (22), 55 (14), 41 (12), 110 (11)...]				5.97	1123.5	0.03
allo-Ocimene	5.58	1333.2	0.01	6.09	1131.0	0.02
trans-Sabinol	9.84	1653.7	0.04	6.19	1137.7	0.05
trans-Verbenol	9.56	1631.6	0.03	6.25	1141.9	0.02
Unknown RHGR XIX [m/z 109, 43 (75), 137 (46), 67 (31), 93 (25)... 152 (4)]				6.50	1157.8	0.03
Borneol	9.79*	1650.0	[0.30]	6.59*	1164.0	[0.02]
α-Phellandren-8-ol	10.16	1679.8	0.02	6.59*	1164.0	[0.02]
cis-Sabinol	10.88	1739.6	0.07	6.64	1167.1	0.07
Umbellulone	8.90	1578.9	0.03	6.67	1169.2	0.03
Terpinen-4-ol	8.58	1554.3	0.36	6.75	1174.3	0.37
meta-Cymen-8-ol	11.55	1796.7	0.04	6.85	1180.5	0.04
Cryptone	9.16	1599.0	0.01	6.89*	1183.2	[0.04]
para-Cymen-8-ol	11.52	1793.7	0.02	6.89*	1183.2	[0.04]
α-Terpineol	9.79*	1650.0	[0.30]	6.97	1188.5	0.30
Methylchavicol	9.32	1612.4	1.28	7.09	1196.7	1.27
cis-α-Phellandrene epoxide (iPr vs Me)	11.04	1753.7	0.04	7.12	1198.3	0.02
trans-Piperitol	10.37	1697.2	0.02	7.24	1205.9	0.02
trans-Carveol	11.41	1784.5	0.02	7.41	1217.9	0.02
Cuminal	10.58	1715.0	0.01	7.67	1235.3	0.02
Carvone	10.01	1667.8	0.03	7.75	1241.1	0.03
Unknown CALU IV [m/z 43, 97 (69), 107 (46), 41 (28), 55 (21),	11.12	1760.3	0.03	7.89*	1250.6	[0.05]

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109 (20)...]						
Piperitone	9.90*	1658.5	[0.09]	7.89*	1250.6	[0.05]
Linalyl acetate	8.13*	1519.7	[0.06]	8.01	1258.6	0.01
Unknown BOSE VI [m/z 109, 41 (22), 81 (14), 43 (11)... 152 (4)]				8.12	1266.6	0.02
Bornyl acetate	8.24	1528.4	0.01	8.40	1285.9	0.03
Thymol	15.20*	2136.0	[0.07]	8.67	1303.8	0.13
Carvacrol	15.38	2154.0	0.03	8.78	1308.2	0.02
para-Menth-5-en-1,2-diol isomer III	15.20*	2136.0	[0.07]	8.82	1311.3	0.07
α-Terpinyl acetate	9.70	1642.6	0.02	9.34	1348.5	0.04
α-Ylangene	7.01	1436.5	0.01	9.62	1368.4	0.02
α-Copaene	7.11	1443.8	0.06	9.69	1373.0	0.07
β-Bourbonene	7.45	1468.7	0.29	9.80*	1380.7	[0.30]
1,5-diepi-β-Bourbonene	7.34	1460.6	0.02	9.80*	1380.7	[0.30]
β-Elemene	8.41*	1541.0	[0.03]	9.90	1388.2	0.03
Methyleugenol	13.33	1956.0	0.09	10.12	1404.0	0.10
β-Caryophyllene	8.41*	1541.0	[0.03]	10.22	1410.8	0.02
β-Ylangene	8.13*	1519.7	[0.06]	10.26	1414.4	0.05
β-Copaene	8.32	1534.7	0.04	10.40	1424.5	0.04
trans-α-Bergamotene	8.41*	1541.0	[0.03]	10.54	1435.2	0.04
Isogermacrene D	8.98	1585.0	0.05	10.60	1439.8	0.03
γ-Muurolene	9.55	1630.3	0.03	11.06	1473.9	0.03
Germacrene D	9.75	1646.9	0.07	11.09	1476.2	0.07
Unknown BOSE VII [m/z 91, 93 (92), 105 (71), 77 (69), 79 (68), 133 (63)... 204 (32)]	9.90*	1658.5	[0.09]	11.11	1478.2	0.08
δ-Cadinene	10.40	1699.3	0.11	11.67	1520.9	0.10
Elemicin	15.51	2167.2	0.02	12.14	1557.4	0.03
10-epi-γ-Eudesmol	14.17	2035.4	0.01	12.78	1608.0	0.01
α-Phellandrene dimer II	12.43	1874.1	0.03	14.92	1789.7	0.04
(3*E*)-Cembrene A	15.55	2171.4	0.02	16.68	1951.3	0.03
Verticilla-4(20),7,11-triene	16.39	2257.5	0.03	17.18	1999.0	0.02
Cembrenol	20.08	2673.9	0.02	18.45	2125.7	0.02
Serratol	19.59	2616.0	0.08	18.58	2140.1	0.08
Total reported		98.70%			99.42%	

*: 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

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†: 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

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