ANALYSIS Hay Essential Oil

SAMPLE IDENTIFICATION

Internal code : 17C27-FSE7-1-DM
Customer identification : Hay - Lot #HEF11631
Type : Essential oil
Source : *Hierochloe alpina*
Customer : Flowers Shining Everywhere Inc.

ANALYSIS

Method : PC-PA-001-15E06, "Analysis of the composition of a liquid essential oil by GC-FID" (in French).
Analyst : Alexis St-Gelais, M. Sc., chimiste
Analysis date : 2017-03-30

Checked and approved by :

Alexis St-Gelais, M. Sc., chimiste 2013-174

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IDENTIFIED COMPOUNDS

Identification	Column: BPS			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
α-Pinene	3.40	928	0.24	0.23	941	1.15	Monoterpene
α-Fenchene	3.67	944	0.01	0.01	987	1.38	Monoterpene
Camphene	3.69	945	0.01	0.01	995	1.43	Monoterpene
Thuja-2,4(10)-diene	3.78	950	0.01	0.01	1054	1.95	Monoterpene
Δ3-Carene	4.73	1006	0.02	0.01	1083	2.25	Monoterpene
para-Cymene	5.09	1026	0.01	0.01	1205	3.74	Monoterpene
Limonene	5.13	1028	0.01	0.01	1136	2.84	Monoterpene
Terpinolene	6.13	1083	tr	0.01	1220	3.96	Monoterpene
para-Cymenene	6.35	1095	0.01	0.01	1364	6.14	Monoterpene
trans-Pinocarveol	7.34	1133	0.06	0.06	1567	11.48	Monoterp. alcohol
α-Terpineol	9.24	1201	0.06	0.08	1625	13.88	Monoterp. alcohol
diepi-α-Cedrene	17.71	1361	0.27	0.29	1430	7.40	Sesquiterpene
α-Duprezianene	18.04*	1366	0.43	0.39	1445	7.75	Sesquiterpene
Isolongifolene	18.04*	1366	[0.43]	0.03	1448	7.83	Sesquiterpene
Sesquithujene isomer?	18.33	1371	0.13				Sesquiterpene
7-epi-Sesquithujene	18.77	1377	0.18				Sesquiterpene
α-Cedrene	20.31	1400	20.71	21.30	1493	8.92	Sesquiterpene
β-Caryophyllene	20.47	1402	0.62	0.80	1504	9.18	Sesquiterpene
β-Cedrene	20.70	1405	4.60	4.17	1514	9.48	Sesquiterpene
Thujopsen	21.81	1419	26.57	27.11	1538	10.40	Sesquiterpene
Seychellene	22.59*	1428	1.29	1.15	1549	10.80	Sesquiterpene
α-Himachalene	22.59*	1428	[1.29]	0.08	1556	11.05	Sesquiterpene
β-Barbatene	23.02	1433	0.13				Sesquiterpene
α-Acoradiene	23.93	1444	0.52	0.63	1582	12.03	Sesquiterpene
β-Acoradiene	24.19	1447	0.34	0.34	1591	12.32	Sesquiterpene
γ-Himachalene	24.62	1452	0.27	0.99	1603	12.78*	Sesquiterpene
β-Chamigrene	25.05	1457	1.82	2.62	1619	13.55	Sesquiterpene
ar-Curcumene	26.89*	1480	3.77	1.62	1713	18.43	Sesquiterpene
β-Alaskene	26.89*	1480	[3.77]	0.65	1635	14.33	Sesquiterpene
α-Cuprenene	26.89*	1480	[3.77]				Sesquiterpene
α-Chamigrene	27.22	1484	1.04	0.99	1634	14.27	Sesquiterpene
Cuparene	27.84*	1491	1.78	0.11	1703	17.89	Sesquiterpene
α-Alaskene	27.84*	1491	[1.78]				Sesquiterpene
cis-α-Bisabolene	28.10	1494	0.53	0.57	1678	16.62	Sesquiterpene
7-epi-α-Selinene	28.75	1502	0.11	0.10	1668	16.09	Sesquiterpene
γ-Cuprenene	30.03	1520	0.70	[0.99]	1603	12.78*	Sesquiterpene
δ-Cuprenene	30.63	1528	0.28				Sesquiterpene
allo-Cedrol	34.32	1580	0.13	21.12	1996	36.16*	Sesquiterp. alcohol
α-Cedrol	35.34*	1594	22.69	[21.12]	1996	36.16*	Sesquiterp. alcohol
Widdrol	35.34*	1594	[22.69]	2.58	2028	37.50	Sesquiterp. alcohol
epi-Cedrol	35.78	1600	0.26				Sesquiterp. alcohol

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α-Acorenol	36.51	1618	0.56	0.55	2015	36.99	Sesquiterp. alcohol
β-Acorenol	36.78	1625	0.35	0.28	2052	38.23	Sesquiterp. alcohol
Cedr-8-en-15-ol?	37.82	1650	0.47	0.34	2211	42.73	Sesquiterp. alcohol
Cedr-8-en-13-ol	39.18*	1683	0.35	0.05	2270	44.11	Sesquiterp. alcohol
α-Bisabolol	39.18*	1683	[0.35]	0.29	2127	40.55	Sesquiterp. alcohol
Unknown (m/z = 91, 105 (92), 123 (64), 93 (58), 79 (57), 107 (57), 135 (54), 55 (51), 119 (50)... 220 (18))	39.51	1692	0.54				Oxygenated sesquiterp.
Thujopsenal?	39.65	1695	0.20				Sesquiterp. aldehyde
Total identified				91.56%	89.60%		

*: Two or more compounds are coeluting on this column

[xx]: Duplicate percentage due to coelutions, not taken account in the identified total

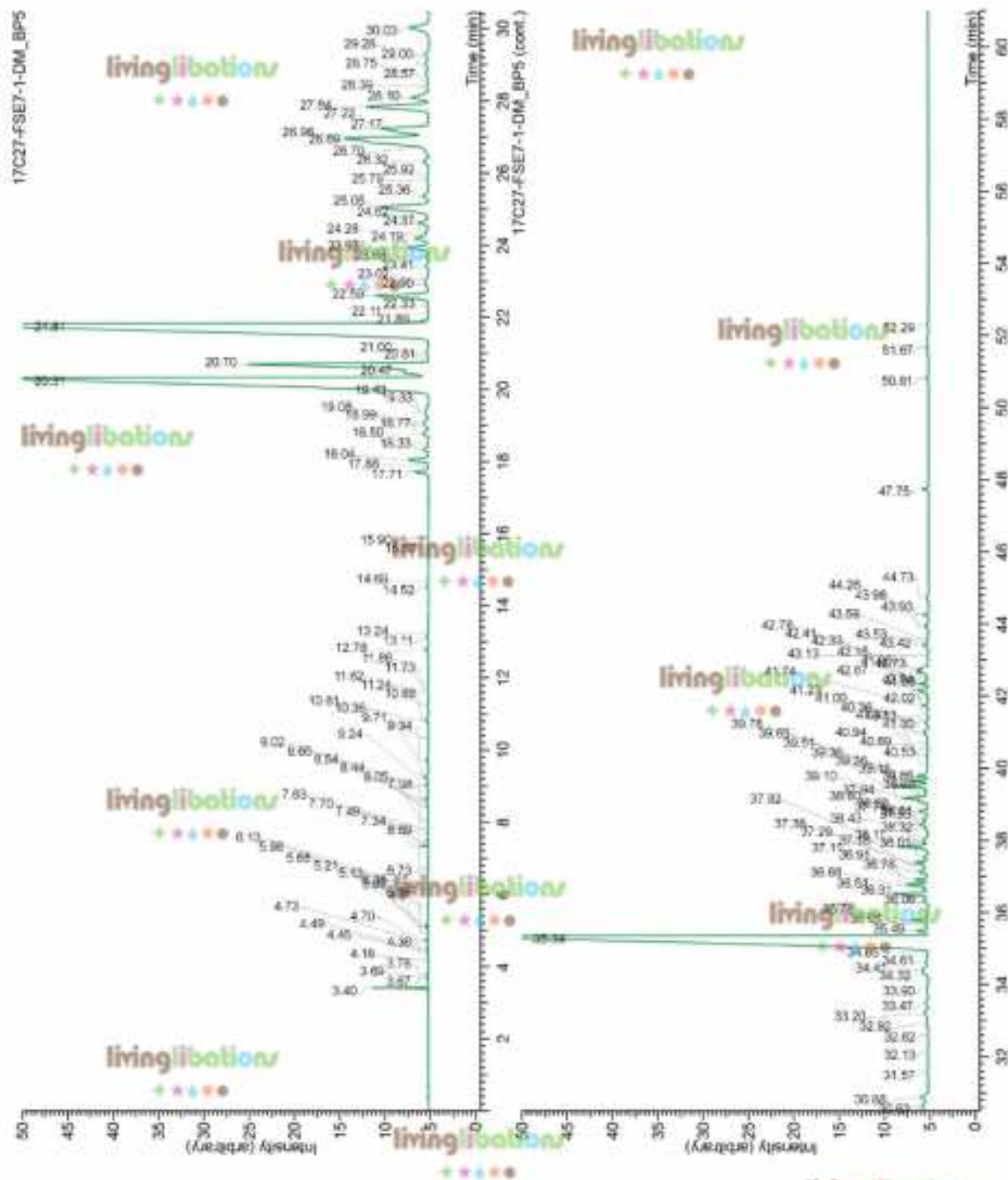Note: no correction factor was applied

OTHER DATA

Physical aspect : Light yellow liquid
Refractive index : 1.5045 ± 0.0003 (20 °C)

CONCLUSION

No adulterant, contaminant or diluent were detected using this method.

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