

Date : May 20, 2016

SAMPLE IDENTIFICATION

Internal code : 16E11-MJO2-1-SM

Customer identification : Young Living - Tea Tree - Lot #16317018 - Untampered seal

Type : Essential oil

Source : *Melaleuca alternifolia*

Customer : Miles Jordens

ANALYSIS

Method : PC-PA-001-15E06, "Analysis of the composition of a liquid essential oil by GC-FID" (in French).

Analyst : Sylvain Mercier, M. Sc., chimiste

Analysis date : 2016-05-20

Checked and approved by :



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

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IDENTIFIED COMPOUNDS

Identification	Column: BP5			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
α -Thujene	3.24	922	1.12	1.31	958	0.94	Monoterpene
α -Pinene	3.34	928	2.80	2.57	951	0.91	Monoterpene
Camphene	3.62	945	0.01	0.01	1004	1.13	Monoterpene
Sabinene	4.04	971	0.41	0.41	1059	1.57	Monoterpene
β -Pinene	4.10	975	0.85	0.84	1042	1.43	Monoterpene
Myrcene	4.38	992	0.98	0.95	1118	2.07	Monoterpene
α -Phellandrene	4.65	1007	0.51	0.49	1111	2.00	Monoterpene
α -Terpinene	4.87	1019	11.61	11.50	1128	2.19	Monoterpene
para-Cymene	5.02	1028	2.06	2.09	1213	3.19	Monoterpene
Limonene	5.07	1030	1.06	0.98	1143	2.37	Monoterpene
β -Phellandrene	5.10	1032	0.97	4.06	1149	2.45*	Monoterpene
1,8-Cineole	5.14	1034	2.99	[4.06]	1149	2.45*	Monoterp. ether
trans- β -Ocimene	5.42	1050	0.02	0.02	1208	3.12	Monoterpene
γ -Terpinene	5.66	1064	23.36	23.15	1198	3.02	Monoterpene
cis-Sabinene hydrate	5.91	1077	0.03	0.05	1417	6.12	Monoterp. alcohol
Terpinolene	6.09	1087	4.07	4.00	1229	3.42	Monoterpene
para-Cymenene	6.26	1096	0.03	0.03	1371	5.43	Monoterpene
Linalool	6.50	1107	0.11	0.22	1498	7.67*	Monoterp. alcohol
cis-para-Menth-2-en-1-ol	7.00	1126	0.16	[0.22]	1498	7.67*	Monoterp. alcohol
trans-Pinocarveol	7.31	1138	0.03	0.04	1577	9.88	Monoterp. alcohol
cis-para-Mentha-2,8-dien-1-ol	7.49	1144	0.04	0.04	1606	10.75	Monoterp. alcohol
trans-para-Menth-2-en-1-ol	7.53	1146	0.08	0.47	1566	9.52*	Monoterp. alcohol
Terpinen-4-ol	8.70	1190	36.67	38.61	1539	8.72*	Monoterp. alcohol
para-Cymen-8-ol	8.98	1200	0.03	0.02	1768	18.57	Monoterp. alcohol
α -Terpineol	9.15	1205	2.19	2.29	1629	11.63*	Monoterp. alcohol
trans-Piperitol	9.58	1214	0.07	0.81	1677	13.79*	Monoterp. alcohol
Piperitone	11.43	1256	0.02	[2.29]	1629	11.63*	Monoterp. ketone
α -Cubebene	15.57	1335	0.05	0.04	1412	6.03	Sesquiterpene
Longicyclene	16.86	1355	0.07	0.06	1422	6.22	Sesquiterpene
α -Copaene	17.25	1361	0.18	0.12	1440	6.54	Sesquiterpene
β -Elemene	18.22	1376	0.04	0.24	1530	8.45*	Sesquiterpene
α -Gurjunene	19.18	1391	0.36	0.39	1469	7.12	Sesquiterpene
β -Caryophyllene	20.03	1404	0.44	[0.24]	1530	8.45*	Sesquiterpene
Aromadendrene	21.40*	1420	1.04	[38.61]	1539	8.72*	Sesquiterpene
Seychellene	21.55	1422	0.14	0.30	1541	8.79	Sesquiterpene
cis-Cadina-1(6),4-diene	22.08	1428	0.12	0.14	1560	9.35	Sesquiterpene
α -Humulene	22.38	1432	0.10	0.32	1588	10.19*	Sesquiterpene
allo-Aromadendrene	23.02	1440	0.43	[0.47]	1566	9.52*	Sesquiterpene
trans-Cadina-1(6),4-diene	24.43	1457	0.28	[0.32]	1588	10.19*	Sesquiterpene
α -Amorphene	25.35	1468	0.07	0.06	1612	10.91	Sesquiterpene

Viridiflorene	25.75	1473	0.93	0.87	1622	11.29	Sesquiterpene
Bicyclogermacrene	26.16*	1478	0.69	0.61	1645	12.34	Sesquiterpene
α -Selinene	26.16*	1478	[0.69]	0.06	1637	11.99	Sesquiterpene
α -Muurolene	26.91	1487	0.09	0.11	1649	12.52	Sesquiterpene
δ -Cadinene	28.61	1508	0.74	[0.81]	1677	13.79*	Sesquiterpene
Zonarene	28.79	1510	0.18	0.26	1671	13.51	Sesquiterpene
<i>trans</i> -Calamenene	28.88	1512	0.04	0.05	1736	16.72	Sesquiterpene
<i>trans</i> -Cadina-1,4-diene	29.69	1523	0.12	0.13	1694	14.58	Sesquiterpene
α -Elemol	32.02	1555	0.05	0.04	2002	33.66	Sesquiterp. alcohol
Spathulenol	33.15	1570	0.05	0.04	2019	34.64	Sesquiterp. alcohol
Globulol	33.61	1576	0.17	0.17	1974	31.91	Sesquiterp. alcohol
Viridiflorol	34.11	1583	0.07	0.07	1981	32.37	Sesquiterp. alcohol
Guaiol	34.35	1587	0.07	0.07	2010	34.16	Sesquiterp. alcohol
1,10-diepi-Cubenol	36.10	1616	0.09	0.10	1956	30.91	Sesquiterp. alcohol
Aromadendrene	21.40*	1420	[1.04]	[38.61]	1539	8.72*	Sesquiterpene
Total identified			98.89%	99.21%			

*: 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 : Clear liquid

Refractive index : 1.4770 \pm 0.0003 (20 °C)

CONCLUSION

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

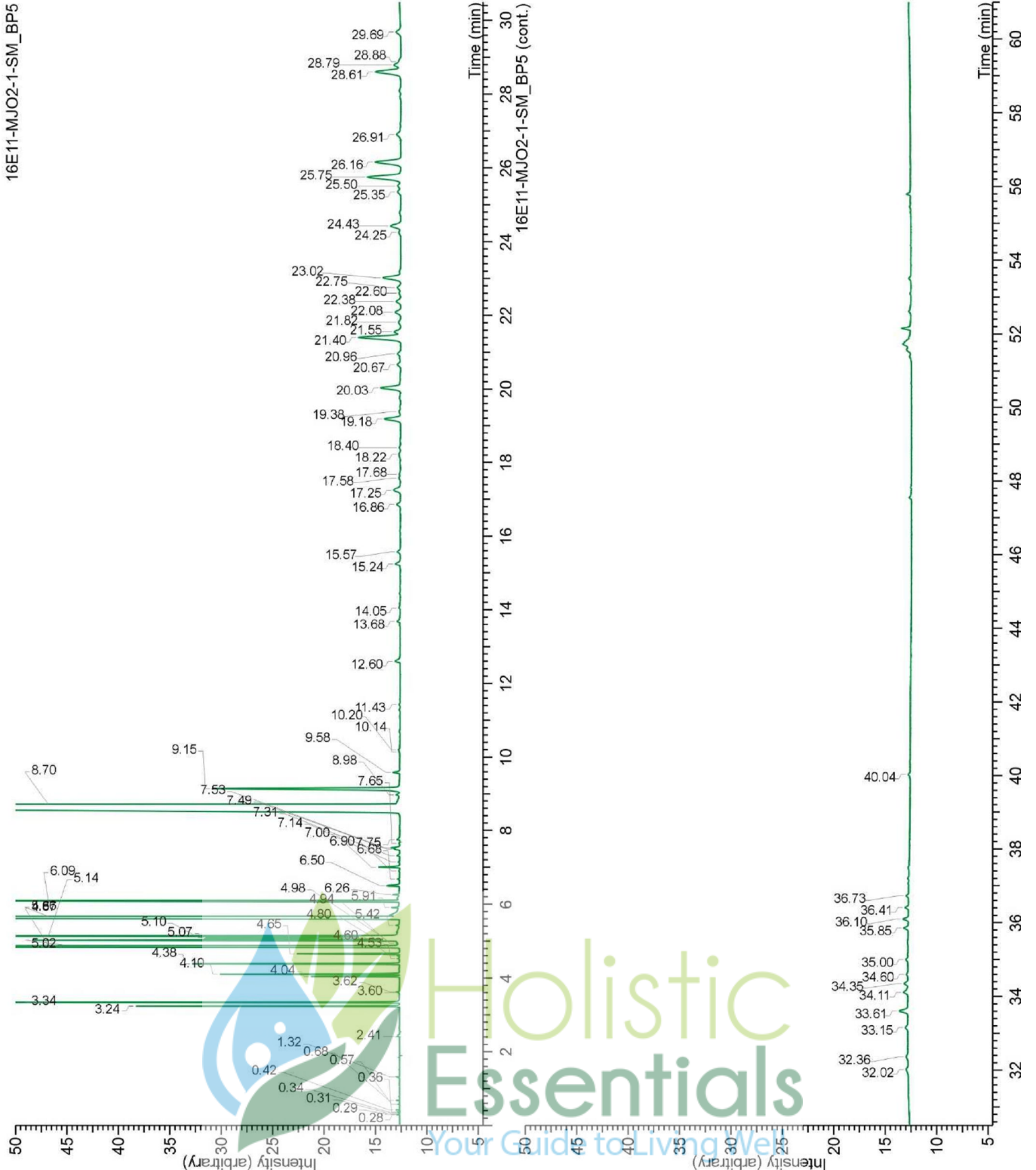


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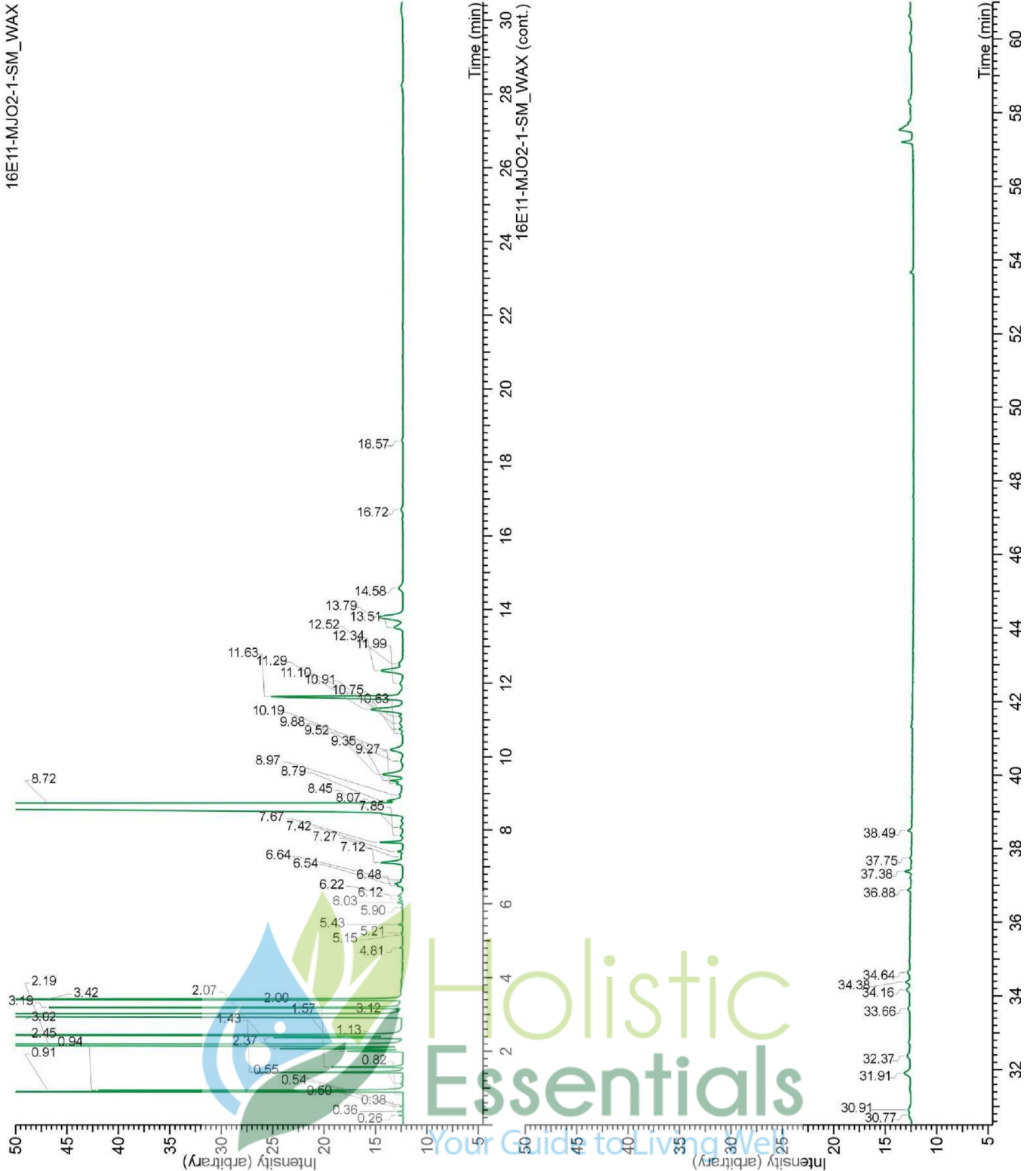


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