

GC/MS BATCH NUMBER: D10104

ESSENTIAL OIL: DILL WEED
BOTANICAL NAME: ANETHUM GRAVEOLENS
ORIGIN: USA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF DILL WEED OIL	%
CARVONE	39.32
LIMONENE	29.43
α -PHELLANDRENE	17.80
DILL ETHER	5.20
β -PHELLANDRENE	2.39
p-CYMENE	1.47

Comments from Robert Tisserand: Delicious, sweet-green minty odor profile, with constituents in expected amounts.

Date : January 4, 2018

SAMPLE IDENTIFICATION

Internal code : 17L27-PTH2-1-CC

Customer identification : Dill Weed - USA - D10104610R

Type : Essential oil

Source : *Anethum graveolens*

Customer : Plant Therapy

ANALYSIS

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

Identifications double-checked by GC-MS

Analyst : Sylvain Mercier, M. Sc., chimiste

Analysis date : 2018-01-04

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.	
Isovaleral	0.67	674	0.01				Aliphatic aldehyde
2-Methylbutyral	0.70	678	0.01				Aliphatic aldehyde
2-Ethylfuran	0.83	694	tr				Furan
Toluene	1.32	759	0.01	0.56	946	1.05*	Simple phenolic
Hexanal	1.72	806	0.01	0.01	1019	1.48	Aliphatic aldehyde
<i>trans</i> -2-Hexenal	2.47	862	0.02	[0.56]	946	1.05*	Aliphatic aldehyde
<i>cis</i> -Hex-3-en-1-ol	2.51	865	0.02	0.01	1325	5.21	Aliphatic alcohol
<i>trans</i> -Hex-2-en-1-ol	2.68	878	0.02	0.02	1356	5.66	Aliphatic alcohol
Hexanol	2.73	882	0.02	0.02	1312	5.01	Aliphatic alcohol
α -Thujene	3.32	920	0.11	0.11	959	1.09	Monoterpene
α -Pinene	3.43	927	0.57	[0.56]	946	1.05*	Monoterpene
Camphene	3.72	944	0.01	0.01	996	1.32	Monoterpene
Sabinene	4.15	969	0.06	0.05	1062	1.81	Monoterpene
β -Pinene	4.21	973	0.03	0.03	1042	1.65	Monoterpene
Myrcene	4.49	990	0.37	0.37	1117	2.36	Monoterpene
α -Phellandrene	4.82*	1008	18.04	17.80	1113	2.32	Monoterpene
Δ 3-Carene	4.82*	1008	[18.04]	0.01	1081	1.95	Monoterpene
Limonene	5.26*	1032	31.60	29.43	1148	2.74	Monoterpene
<i>para</i> -Cymene	5.26*	1032	[31.60]	1.47	1212	3.55	Monoterpene
1,8-Cineole	5.28*	1033	1.51	0.30	1156	2.86	Monoterp. ether
β -Phellandrene	5.28*	1033	[1.51]	2.39	1151	2.78	Monoterpene
<i>cis</i> - β -Ocimene	5.38	1038	0.02	0.03	1190	3.24*	Monoterpene
<i>trans</i> - β -Ocimene	5.55	1048	0.01	0.01	1204	3.44	Monoterpene
γ -Terpinene	5.74	1058	0.02	[0.03]	1190	3.24*	Monoterpene
Terpinolene	6.22	1084	0.08	0.08	1224	3.73	Monoterpene
<i>para</i> -Cymenene	6.45	1096	0.10	0.07	1372	5.90	Monoterpene
Nonanal	6.81	1110	0.02	0.03	1338	5.40	Aliphatic aldehyde
<i>trans</i> - <i>para</i> -Mentha-2,8-dien-1-ol	7.25	1126	0.03	0.02	1566	10.63	Monoterp. alcohol
<i>cis</i> -Limonene oxide	7.37	1130	0.02	0.02	1378	5.99	Monoterp. ether
<i>trans</i> -Limonene oxide	7.49	1134	0.03	0.04	1390	6.18	Monoterp. ether
Terpinen-4-ol	8.91	1186	0.02	0.04	1523	9.26	Monoterp. alcohol
Dill ether	8.99	1189	5.20	5.22	1438	7.13	Monoterp. ether
<i>cis</i> -Dihydrocarvone	9.53	1204	0.29	0.29	1522	9.22*	Monoterp. ketone
<i>trans</i> -Dihydrocarvone	9.73	1209	0.98	0.97	1537	9.69	Monoterp. ketone
Isodihydrocarveol	10.63	1228	0.04				Monoterp. alcohol
<i>trans</i> -Carveol	10.79	1232	0.05	0.04	1762	20.50	Monoterp. alcohol
Carvone	11.80*	1254	39.09	39.32	1642	13.83	Monoterp. ketone
<i>cis</i> -Carveol	11.80*	1254	[39.09]	0.02	1787	22.05	Monoterp. alcohol
<i>trans</i> -Carvone oxide	12.74	1274	0.03				Monoterp. ketone

Unknown (m/z = 111, 126 (90), 43 (86), 71 (50), 109 (32)...)	16.29	1335	0.18	0.19	2123	39.82	
β -Caryophyllene	20.69	1400	0.02	[0.29]	1522	9.22*	Sesquiterpene
Germacrene D	25.74	1461	0.07	0.05	1615	12.57	Sesquiterpene
Total identified	98.54%			98.84%			

*: 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

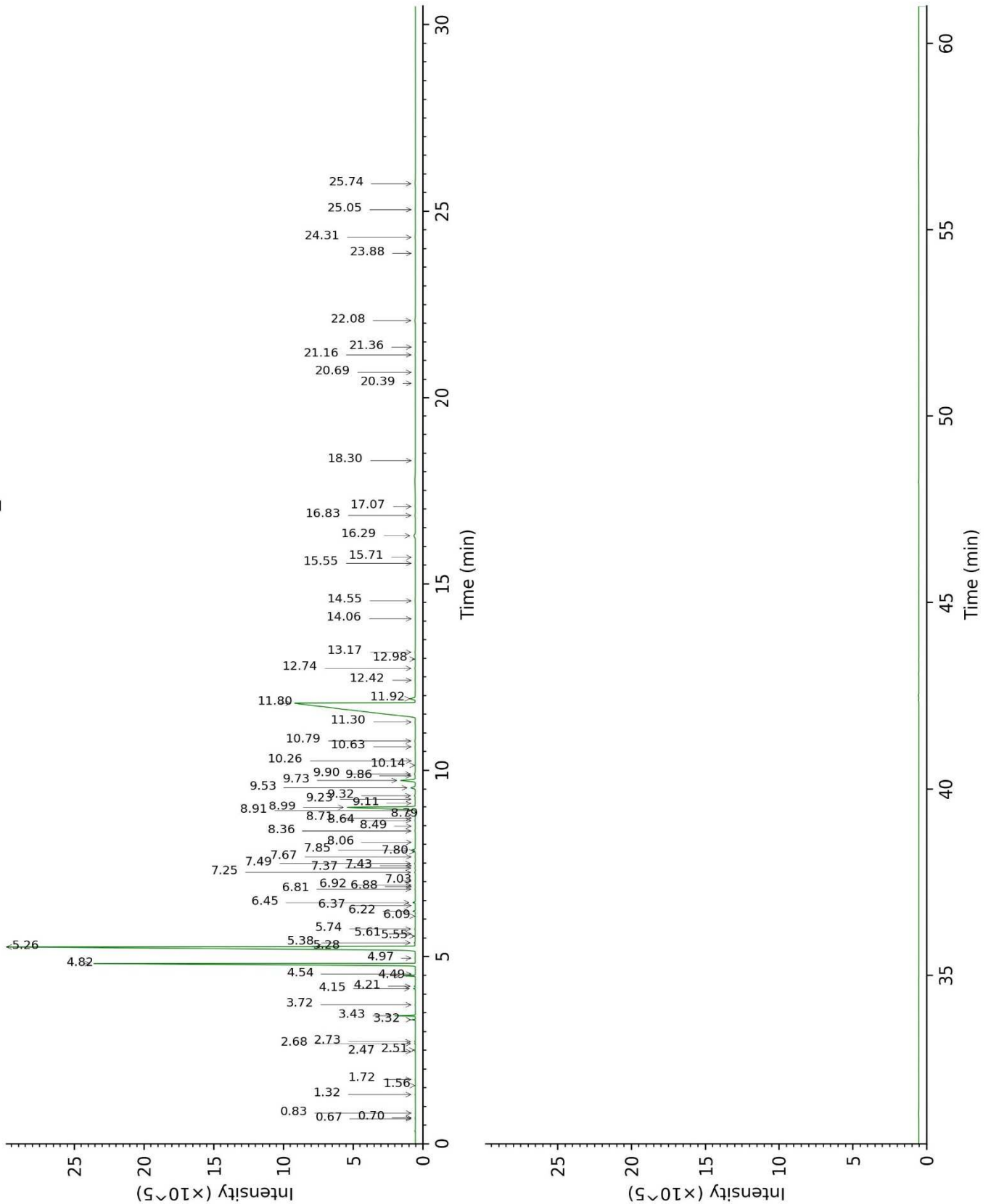
Physical aspect : Clear liquid

Refractive index : 1.4825 \pm 0.0003 (20 °C)

CONCLUSION

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

17L27-PTH2-1-CC_BP5



17L27-PTH2-1-CC_WAX

