

GC/MS BATCH NUMBER: TO0100

ESSENTIAL OIL: THYME THYMOL ORGANIC

BOTANICAL NAME: THYMUS VULGARIS

ORIGIN: SPAIN

KEY CONSTITUENTS PRESENT IN THIS BATCH OF THYME THYMOL ORGANIC OIL	%
THYMOL	48.6
p-CYMENE	20.2
γ-TERPINENE	7.0
LINALOOL	4.7
CARVACROL	2.6
MYRCENE	1.7
α-TERPINENE	1.5
β-CARYOPHYLLENE	1.4
TERPINEN-4-OL	1.3
α-PINENE	1.1

Comments from Robert Tisserand: Characteristic intense green odor quality. All 13 key ISO constituents are within range.

Date : May 31, 2017

SAMPLE IDENTIFICATION

Internal code : 17E23-PTH2-1-DM

Customer identification : Organic Thyme Thymol - Spain - TO010065R

Type : Essential oil

Source : *Thymus vulgaris*

Customer : Plant Therapy

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 : 2017-05-30

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.	
<i>cis</i> -Hex-3-en-1-ol	2.47	864	0.04	0.03	1321	5.22	Aliphatic alcohol
Tricyclene	3.23	917	0.03	0.03	919	0.98	Monoterpene
α -Thujene	3.31	922	0.90	0.93	952	1.12	Monoterpene
α -Pinene	3.42	929	1.14	1.06	942	1.07	Monoterpene
α -Fenchene	3.70*	946	0.62	0.01	987	1.28	Monoterpene
Camphene	3.70*	946	[0.62]	0.58	1007	1.34	Monoterpene
Thuja-2,4(10)-diene	3.79	951	0.03	0.03	1057	1.82*	Monoterpene
Sabinene	4.13	971	0.01	[0.03]	1057	1.82*	Monoterpene
β -Pinene	4.19	975	0.22	0.20	1042	1.67	Monoterpene
Myrcene	4.47*	992	1.94	1.70	1114	2.38	Monoterpene
Octen-3-ol	4.47*	992	[1.94]	0.16	1394	6.36	Aliphatic alcohol
Octan-3-one	4.52	994	0.06	20.09	1211	3.63*	Aliphatic ketone
α -Phellandrene	4.75*	1007	0.25	0.17	1108	2.30	Monoterpene
Δ 3-Carene	4.75*	1007	[0.25]	0.08	1089	2.12	Monoterpene
α -Terpinene	4.94	1018	1.51	1.50	1122	2.47	Monoterpene
para-Cymene	5.17	1030	20.17	[20.09]	1211	3.63*	Monoterpene
Limonene	5.19	1031	0.41	0.43	1138	2.69	Monoterpene
β -Phellandrene	5.21	1033	0.18	0.79	1144	2.76*	Monoterpene
1,8-Cineole	5.24	1034	0.59	[0.79]	1144	2.76*	Monoterp. ether
<i>cis</i> - β -Ocimene	5.34	1040	0.02	6.91	1188	3.34*	Monoterpene
<i>trans</i> - β -Ocimene	5.52	1050	0.08	0.06	1197	3.44	Monoterpene
γ -Terpinene	5.74	1061	7.04	[6.91]	1188	3.34*	Monoterpene
<i>cis</i> -Linalool oxide (fur.)	5.98	1075	0.03	0.03	1374	6.04	Monoterp. alcohol
<i>cis</i> -Sabinene hydrate	6.02	1077	0.22	0.31	1403	6.50*	Monoterp. alcohol
Terpinolene	6.18	1086	0.19	0.17	1222	3.77	Monoterpene
<i>trans</i> -Linalool oxide (fur.)	6.30	1092	0.06	[0.31]	1403	6.50*	Monoterp. alcohol
Fenchone	6.34	1094	0.01	0.01	1318	5.16	Monoterp. ketone
para-Cymenene	6.38	1097	0.06	0.05	1365	5.91	Monoterpene
Linalool	6.68*	1109	4.74	4.67	1492	8.44*	Monoterp. alcohol
<i>trans</i> -Sabinene hydrate	6.68*	1109	[4.74]	0.13	1477	8.09	Monoterp. alcohol
<i>cis</i> -para-Menth-2-en-1-ol	7.10	1124	0.05	[4.67]	1492	8.44*	Monoterp. alcohol
<i>trans</i> -Pinocarveol	7.49	1138	0.03	0.03	1558	10.45	Monoterp. alcohol
Camphor	7.72	1147	0.36	0.33	1424	6.84	Monoterp. ketone
Borneol	8.54	1177	0.92	1.00	1617	12.56*	Monoterp. alcohol
Terpinen-4-ol	8.74	1184	1.30	1.37	1529	9.38*	Monoterp. alcohol
para-Cymen-8-ol	9.21	1201	0.06	0.04	1766	20.50	Monoterp. alcohol
α -Terpineol	9.35	1204	0.22	0.30	1625	12.85	Monoterp. alcohol
γ -Terpineol	9.54	1208	0.14				Monoterp. alcohol
Thymol methyl ether	10.31	1225	0.05	[1.37]	1529	9.38*	Monoterp. ether
Carvacrol methyl ether	10.55	1231	0.30	0.26	1532	9.48	Monoterp. ether
Neral	10.88	1238	0.28	0.29	1599	11.93	Monoterp. aldehyde

Carvone	11.47	1251	0.04	0.04	1636	13.36	Monoterp. ketone
Geraniol	11.74	1257	0.05	0.06	1782	21.55	Monoterp. alcohol
Bornyl acetate	12.87	1282	0.03	0.03	1504	8.74	Monoterp. ester
Unknown thymol analogue	13.97	1304	0.14	0.12	2121	39.54	Monoterp. alcohol
Thymol	14.94	1319	48.64	49.41	2110	39.22	Monoterp. alcohol
Carvacrol	15.10	1322	2.59	2.64	2126	39.71	Monoterp. alcohol
Eugenol	17.44	1357	0.07	0.07	2057	37.60	Phenylpropanoid
α -Copaene	17.65	1360	0.03	0.02	1434	7.08	Sesquiterpene
β -Caryophyllene	20.52	1403	1.40	1.47	1521	9.12	Sesquiterpene
Aromadendrene	21.86	1419	0.11	0.08	1524	9.21	Sesquiterpene
α -Humulene	23.26	1436	0.05	0.07	1578	11.17	Sesquiterpene
Germacrene D	25.43	1462	0.26	[1.00]	1617	12.56*	Sesquiterpene
γ -Cadinene	28.49	1499	0.07	0.08	1667	14.96	Sesquiterpene
δ -Cadinene	29.16	1508	0.13	0.14	1673	15.24	Sesquiterpene
Caryophyllene oxide	33.66*	1571	0.28	0.17	1852	26.18	Sesquiterp. ether
Spathulenol	33.66*	1571	[0.28]	0.09	2025	36.29	Sesquiterp. alcohol
τ -Cadinol	37.33	1638	0.01	0.02	2073	38.06	Sesquiterp. alcohol
Total identified			98.16%	98.26%			

*: 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

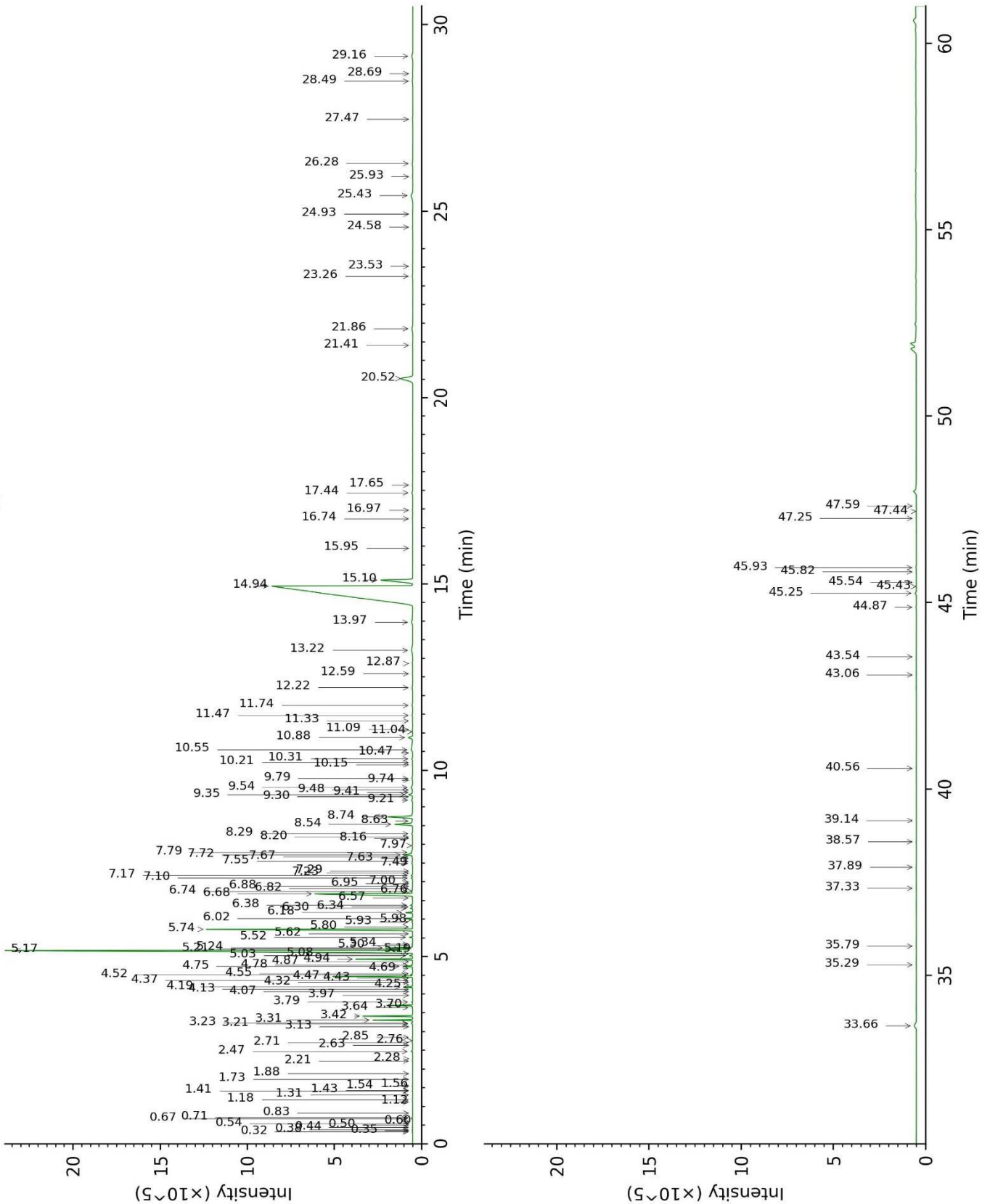
Physical aspect : Yellow liquid

Refractive index : 1.4995 \pm 0.0003 (20 °C)

CONCLUSION

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

17E23-PTH2-1-DM_BP5



17E23-PTH2-1-DM_WAX

