



**PLANT THERAPY**  
100% PURE ESSENTIAL OILS

## GC/MS BATCH NUMBER: MJ0101

**ESSENTIAL OIL:** MARJORAM ORGANIC  
**BOTANICAL NAME:** ORIGANUM MAJORANA  
**ORIGIN:**

KEY CONSTITUENTS PRESENT IN THIS BATCH OF MARJORAM ORGANIC OIL	%
TERPINEN-4-ol	21.9
trans-SABINENE HYDRATE	21.2
γ-TERPINENE	11.8
SABINENE	8.0
α-TERPINENE	7.0
cis-SABINENE HYDRATE	4.6
α-TERPINEOL	2.9
TERPINOLENE	2.7
LINALOOL + cis-PARA-MENTH-2-EN-1-OL	2.4
MYRCENE	2.2
β-CARYOPHYLLENE	2.2
LIMONENE	2.2
LINALYL ACETATE	2.0
β-PHELLANDRENE	1.6
p-CYMENE	1.5
BICYCLOGERMACRENE	1.1

Comments from Robert Tisserand: Excellent warm, herbaceous-metallic odor profile. Constituents are in expected amounts. No red flags.

**Date :** July 6, 2017

*SAMPLE IDENTIFICATION*

**Internal code :** 17G05-PTH4-1-DM

**Customer identification :** Marjoram Organic - Egypt - MJ010116R

**Type :** Essential oil

**Source :** *Origanum majorana*

**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 :** 2017-07-06

Checked and approved by :

---

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

*Note: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.*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.*

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	2.51	867	0.01	0.01	1317	5.02	Aliphatic alcohol
Tricyclene	3.22	917	0.02	0.03	914	0.91	Monoterpene
$\alpha$ -Thujene	3.33	923	0.53	0.57	953	1.06	Monoterpene
$\alpha$ -Pinene	3.44	930	0.79	0.73	943	1.02	Monoterpene
Camphene	3.72	947	0.03	0.02	999	1.27	Monoterpene
Sabinene	4.18	974	7.97	7.85	1061	1.77	Monoterpene
$\beta$ -Pinene	4.23	977	0.46	0.43	1042	1.60	Monoterpene
Myrcene	4.50	993	2.19	2.10	1115	2.29	Monoterpene
Pseudolimonene	4.72	1006	0.06	0.23	1107	2.21*	Monoterpene
$\alpha$ -Phellandrene	4.77	1009	0.19	[0.23]	1107	2.21*	Monoterpene
$\alpha$ -Terpinene	4.98	1020	6.98	6.95	1124	2.40	Monoterpene
<i>para</i> -Cymene	5.16	1030	1.50	1.48	1205	3.43	Monoterpene
Limonene	5.20	1032	2.16	2.10	1140	2.60	Monoterpene
$\beta$ -Phellandrene	5.23	1034	1.58	1.74	1146	2.67*	Monoterpene
1,8-Cineole	5.25	1035	0.11	[1.74]	1146	2.67*	Monoterp. ether
<i>cis</i> - $\beta$ -Ocimene	5.37	1041	0.03	11.66	1190	3.24*	Monoterpene
<i>trans</i> - $\beta$ -Ocimene	5.55	1051	0.05	0.06	1199	3.36	Monoterpene
$\gamma$ -Terpinene	5.78	1064	11.77	[11.66]	1190	3.24*	Monoterpene
<i>cis</i> -Sabinene hydrate	6.10	1081	4.59	4.66	1402	6.33*	Monoterp. alcohol
Terpinolene	6.23	1089	2.65	2.60	1223	3.66	Monoterpene
<i>trans</i> -Sabinene hydrate	6.82*	1114	21.76	21.17	1482	7.94	Monoterp. alcohol
Linalool	6.82*	1114	[21.76]	2.38	1489	8.12*	Monoterp. alcohol
<i>cis</i> - <i>para</i> -Menth-2-en-1-ol	7.26	1130	1.40	[2.38]	1489	8.12*	Monoterp. alcohol
<i>trans</i> -Pinocarveol	7.63	1143	0.06	0.08	1564	10.20	Monoterp. alcohol
<i>trans</i> - <i>para</i> -Menth-2-en-1-ol	7.78	1149	0.78	0.77	1554	9.88	Monoterp. alcohol
Terpinen-4-ol	8.98	1193	21.89	24.17	1534	9.17*	Monoterp. alcohol
<i>cis</i> -Sabinyl acetate	9.41	1205	0.33				Monoterp. ester
$\alpha$ -Terpineol	9.52	1208	2.85	2.80	1621	12.31	Monoterp. alcohol
<i>cis</i> -Piperitol	9.82	1214	0.02				Monoterp. alcohol
<i>trans</i> -Piperitol	9.98	1218	0.41	0.39	1667	14.29*	Monoterp. alcohol
Nerol	10.58	1231	0.03	0.05	1726	17.35	Monoterp. alcohol
Neral	10.83	1237	0.02	0.02	1606	11.74	Monoterp. aldehyde
Linalyl acetate	11.47	1251	1.97	1.98	1497	8.28	Monoterp. ester
Geraniol	11.86	1259	0.06	0.06	1780	20.52	Monoterp. alcohol
Geranial	12.72	1279	0.01	1.09	1647	13.25*	Monoterp. aldehyde
<i>trans</i> -Pinocarvyl acetate	13.27	1291	0.09	[24.17]	1534	9.17*	Monoterp. ester
Carvacrol	14.52	1313	0.05	0.08	2125	39.19	Monoterp. alcohol
$\alpha$ -Cubebene	16.05	1336	0.09	[4.66]	1402	6.33*	Sesquiterpene
Geranyl acetate	19.39	1387	0.06	0.05	1689	15.44	Monoterp. ester
$\beta$ -Caryophyllene	20.69	1405	2.18	[24.17]	1534	9.17*	Sesquiterpene
$\alpha$ -Humulene	23.43	1438	0.09	0.09	1582	10.86	Sesquiterpene

Bicyclogermacrene	26.93	1480	1.12	[1.09]	1647	13.25*	Sesquiterpene
δ-Cadinene	29.39	1511	0.02	[0.39]	1667	14.29*	Sesquiterpene
Caryophyllene oxide	33.81	1573	0.08	0.06	1850	25.08	Sesquiterp. ether
Spathulenol	33.93	1574	0.05	0.05	2023	35.59	Sesquiterp. alcohol
γ-Eudesmol	37.02	1631	0.06	0.08	2064	37.35	Sesquiterp. alcohol
<b>Total identified</b>			<b>99.15%</b>	<b>98.59%</b>			

\*: 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

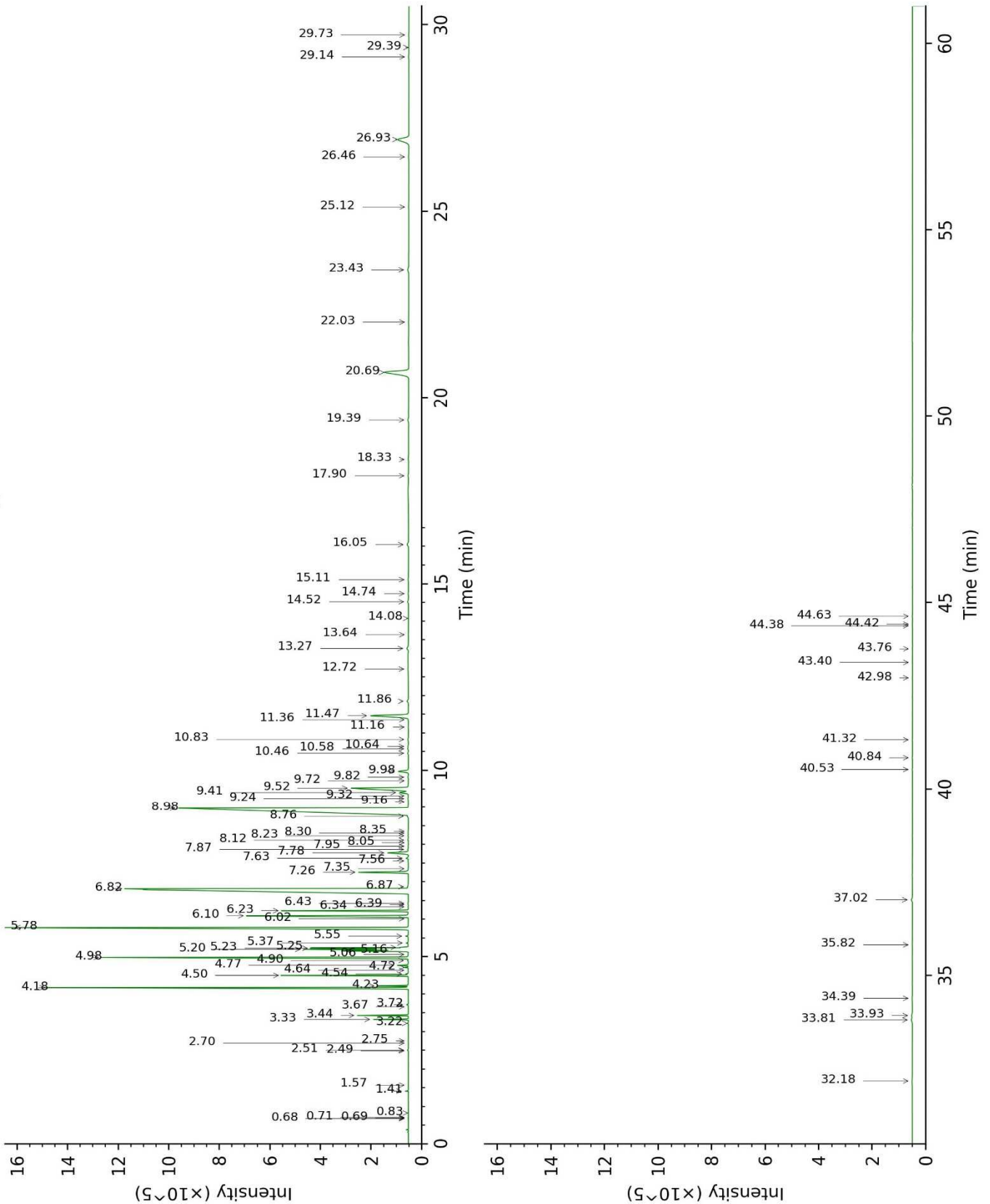
**Physical aspect :** Faintly yellow liquid

**Refractive index :** 1.4710 ± 0.0003 (20 °C)

#### CONCLUSION

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

17G05-PTH4-1-DM\_BP5



17G05-PTH4-1-DM\_WAX

