



**PLANT THERAPY**  
100% PURE ESSENTIAL OILS

## GC/MS BATCH NUMBER: R40105

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**ESSENTIAL OIL:** ROSEMARY  
**BOTANICAL NAME:** ROSMARINUS OFFICINALIS  
**ORIGIN:** TUNISIA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF ROSEMARY OIL	%
1,8-CINEOLE	46.0
$\alpha$ -PINENE	11.1
CAMPHOR	10.3
$\beta$ -PINENE	7.1
CAMPHENE	4.3
$\beta$ -CARYOPHYLLENE	4.0
BORNEOL	2.9
p-CYMENE	2.0
$\alpha$ -TERPINEOL	1.8
MYRCENE	1.4
BORNYL ACETATE	1.1

Comments from Robert Tisserand: Beautiful fresh, clean, green odor profile. Twelve of thirteen key ISO constituents are within range, and the other cannot be determined from the lab report.

**Date :** March 17, 2017

*SAMPLE IDENTIFICATION*

**Internal code :** 17B28-PTH6-1-DM

**Customer identification :** Rosemary - Tunisia - R4010566R

**Type :** Essential oil

**Source :** *Rosmarinus officinalis*

**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 :** 2017-03-16

Checked and approved by :

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

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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	2.46	863	0.03	0.03	1329	5.59	Aliphatic alcohol
Tricyclene	3.21	916	0.17	0.16	924	1.08	Monoterpene
$\alpha$ -Thujene	3.30	922	0.36	0.45	962	1.24	Monoterpene
$\alpha$ -Pinene	3.42	929	11.14	10.82	954	1.21	Monoterpene
Camphene	3.69*	945	4.44	4.27	1002	1.49	Monoterpene
$\alpha$ -Fenchene	3.69*	945	[4.44]	0.06	994	1.42	Monoterpene
Thuja-2,4(10)-diene	3.77	950	0.02	0.18	1060	2.02*	Monoterpene
Sabinene	4.11	970	0.17	[0.18]	1060	2.02*	Monoterpene
$\beta$ -Pinene	4.19	975	7.13	6.91	1045	1.87	Monoterpene
Myrcene	4.45*	990	1.46	1.41	1119	2.60	Monoterpene
Octen-3-ol	4.45*	990	[1.46]	0.04	1409	6.89*	Aliphatic alcohol
Octan-3-one	4.47	992	0.11	1.12	1211	3.84*	Aliphatic ketone
$\alpha$ -Phellandrene	4.72*	1006	0.38	0.17	1112	2.51	Monoterpene
$\Delta$ 3-Carene	4.72*	1006	[0.38]	0.22	1097	2.32	Monoterpene
$\alpha$ -Terpinene	4.91	1016	0.48	0.46	1125	2.69	Monoterpene
para-Cymene	5.14*	1029	2.03	[1.12]	1211	3.84*	Monoterpene
Limonene	5.14*	1029	[2.03]	47.61	1158	3.11*	Monoterpene
1,8-Cineole	5.27	1036	46.04	[47.61]	1158	3.11*	Monoterp. ether
<i>cis</i> - $\beta$ -Ocimene	5.32	1039	0.11	0.87	1192	3.56*	Monoterpene
<i>trans</i> - $\beta$ -Ocimene	5.49	1048	0.09	0.09	1204	3.74	Monoterpene
$\gamma$ -Terpinene	5.68	1058	0.84	[0.87]	1192	3.56*	Monoterpene
<i>cis</i> -Sabinene hydrate	5.97	1074	0.14	0.14	1411	6.94	Monoterp. alcohol
Terpinolene	6.15	1084	0.41	0.38	1226	4.05	Monoterpene
para-Cymenene	6.33	1094	0.03	0.02	1370	6.25	Monoterpene
Linalool	6.59	1105	0.76	0.72	1500	9.08	Monoterp. alcohol
endo-Fenchol	7.01	1121	0.04	4.17	1523	9.81*	Monoterp. alcohol
<i>trans</i> -Pinocarveol	7.50	1139	0.04	0.03	1572	11.66	Monoterp. alcohol
Camphor	7.72	1147	10.34	10.70	1430	7.40*	Monoterp. ketone
Camphene hydrate	7.87	1152	0.04	0.86	1531	10.15*	Monoterp. alcohol
Pinocarvone	8.12	1161	0.02	0.01	1478	8.54	Monoterp. ketone
Borneol	8.45*	1173	3.27	2.90	1624	13.79	Monoterp. alcohol
$\delta$ -Terpineol	8.45*	1173	[3.27]	0.38	1604	12.83	Monoterp. alcohol
Terpinen-4-ol	8.64	1180	0.79	[0.86]	1531	10.15*	Monoterp. alcohol
para-Cymen-8-ol	9.07	1196	0.02	0.02	1772	22.40	Monoterp. alcohol
$\alpha$ -Terpineol	9.24	1201	1.77	1.77	1629	14.03	Monoterp. alcohol
Bornyl acetate	12.78	1280	1.11	1.14	1509	9.33	Monoterp. ester
$\alpha$ -Cubebene	15.80	1332	0.04	[0.04]	1409	6.89*	Sesquiterpene
$\alpha$ -Copaene	17.48	1358	0.22	[10.70]	1430	7.40*	Sesquiterpene
$\beta$ -Caryophyllene	20.39	1401	4.03	[4.17]	1523	9.81*	Sesquiterpene
Methyleugenol	21.12	1410	0.01	0.02	1941	33.72	Phenylpropanoid
$\alpha$ -Humulene	23.05	1433	0.44	0.45	1582	12.03	Sesquiterpene

$\gamma$ -Muuroolene	25.09	1458	0.19	0.20	1612	13.17	Sesquiterpene
Bicyclogermacrene	26.47	1475	0.05	0.06	1633	14.27	Sesquiterpene
$\alpha$ -Muuroolene	27.21	1483	0.04	0.05	1645	14.91	Sesquiterpene
$\gamma$ -Cadinene	28.22	1496	0.11	0.12	1669	16.10	Sesquiterpene
$\beta$ -Bisabolene	28.48	1499	0.06	0.06	1657	15.56	Sesquiterpene
$\delta$ -Cadinene	28.91	1504	0.26	0.25	1674	16.42	Sesquiterpene
Caryophyllene oxide	33.42	1567	0.12	0.11	1850	27.79	Sesquiterp. ether
<b>Total identified</b>			<b>99.35%</b>	<b>99.43%</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 :** Clear liquid

**Refractive index :**  $1.4663 \pm 0.0003$  (20 °C)

#### CONCLUSION

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



