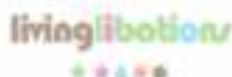


# ANALYSIS Petitgrain Esssential Oil

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Date : August 3, 2017

#### SAMPLE IDENTIFICATION

Internal code : 17G28-F5E13-1-CC

Customer identification : Petitgrain - Corsica - Lot#WL11215

Type : Essential oil

Source : *Citrus deliciosa*

Customer : Flowers Shining Everywhere Inc.

#### 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 : 2017-08-03

Checked and approved by :

Alexis St-Gelais, M. Sc., chimiste

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# IDENTIFIED COMPOUNDS

Identification	Column: BP5			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
Hashishene	3.23	918	0.01	1.81	947	1.02*	Monoterpene
$\alpha$ -Thujene	3.34	924	0.90	1.14	955	1.05	Monoterpene
$\alpha$ -Pinene	3.45	930	2.08	[1.81]	947	1.02*	Monoterpene
Camphene	3.73	948	0.02	0.02	1000	1.26	Monoterpene
Sabinene	4.17	973	0.28	0.31	1055	1.72	Monoterpene
$\beta$ -Pinene	4.73	977	2.13	2.08	1040	1.58	Monoterpene
Myrcene	4.51	994	0.74	0.69	1102	2.25	Monoterpene
$\Delta^3$ -Carene	4.79*	1009	0.06	0.03	1082	2.01	Monoterpene
$\alpha$ -Phellandrene	4.79*	1009	[0.06]	0.03	1097	2.18	Monoterpene
$\alpha$ -Terpinene	4.97	1020	0.16	0.18	1124	2.34	Monoterpene
para-Cymene	5.20	1032	6.52	4.48	1206	3.39	Monoterpene
Limonene	5.24	1034	9.53	11.49	1145	2.60*	Monoterpene
$\beta$ -Cineole	5.28	1036	0.02	[11.49]	1145	2.60*	Monoterp. ether
cis- $\beta$ -Ocimene	5.39	1042	0.16	21.33	1193	3.23*	Monoterpene
trans- $\beta$ -Ocimene	5.57	1052	0.44	0.38	1202	3.33	Monoterpene
$\gamma$ -Terpinene	5.81	1066	21.45	[21.33]	1193	3.23*	Monoterpene
cis-Linalool oxide (fur.)	6.04	1079	0.01	0.01	1381	5.90	Monoterp. alcohol
cis-Sabinene hydrate	6.10	1081	0.03	0.04	1400	6.19*	Monoterp. alcohol
Terpinolene	6.24	1089	0.61	0.57	1223	3.60	Monoterpene
trans-Linalool oxide (fur.)	6.36	1096	0.01	[0.04]	1400	6.19*	Monoterp. alcohol
para-Cymenene	6.46	1100	0.11	0.10	1366	5.66	Monoterpene
Linalool	6.75*	1111	1.37	1.34	1487	7.89*	Monoterp. alcohol
trans-Sabinene hydrate	6.75*	1111	[1.37]	0.02	1475	7.63	Monoterp. alcohol
Epoxysterpinolene	7.66	1145	0.04				Monoterp. ether
Terpinen-4-ol	8.87	1189	0.16	0.57	1526	8.81*	Monoterp. alcohol
$\alpha$ -Terpineol	9.55	1208	0.39	0.37	1620	11.97	Monoterp. alcohol
Thymol methyl ether	10.69	1234	0.17	0.09	1520	8.67	Monoterp. ether
Linalyl acetate	11.52	1252	2.74	2.77	1495	8.10	Monoterp. ester
Thymol	15.34*	1325	0.42	0.27	2104	38.17	Monoterp. alcohol
para-Vinylgualacol	15.34*	1325	[0.42]	0.13	2080	37.45	Phenylpropanoid
Neryl acetate	17.98	1365	0.12	0.10	1661	13.62	Monoterp. ester
Geranyl acetate	19.48	1388	0.20	0.18	1691	15.09	Monoterp. ester
$\beta$ -Caryophyllene	20.73	1406	0.46	[0.57]	1526	8.81*	Sesquiterpene
Dimethyl anthranilate	22.10	1422	48.22	48.89	1940	30.71	Phenolic ester
$\alpha$ -Humulene	23.64	1441	0.05	0.05	1587	10.77	Sesquiterpene
Caryophyllene oxide	33.96	1575	0.12	0.08	1859	24.99	Sesquiterp. ether
<b>Total identified</b>			<b>99.73%</b>	<b>99.55%</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

Essential oil, Citrus deliciosa  
Internal Code: 17G28-FSE13-1-CC

Customer Identification:  
Pettigrain - Corsica - Lot#WL11215

Report prepared for  
Flowers Shining Everywhere Inc.

#### OTHER DATA

**Physical aspect:** Light yellow liquid  
**Refractive Index:**  $1.5265 \pm 0.0003$  (20 °C)

#### CONCLUSION

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

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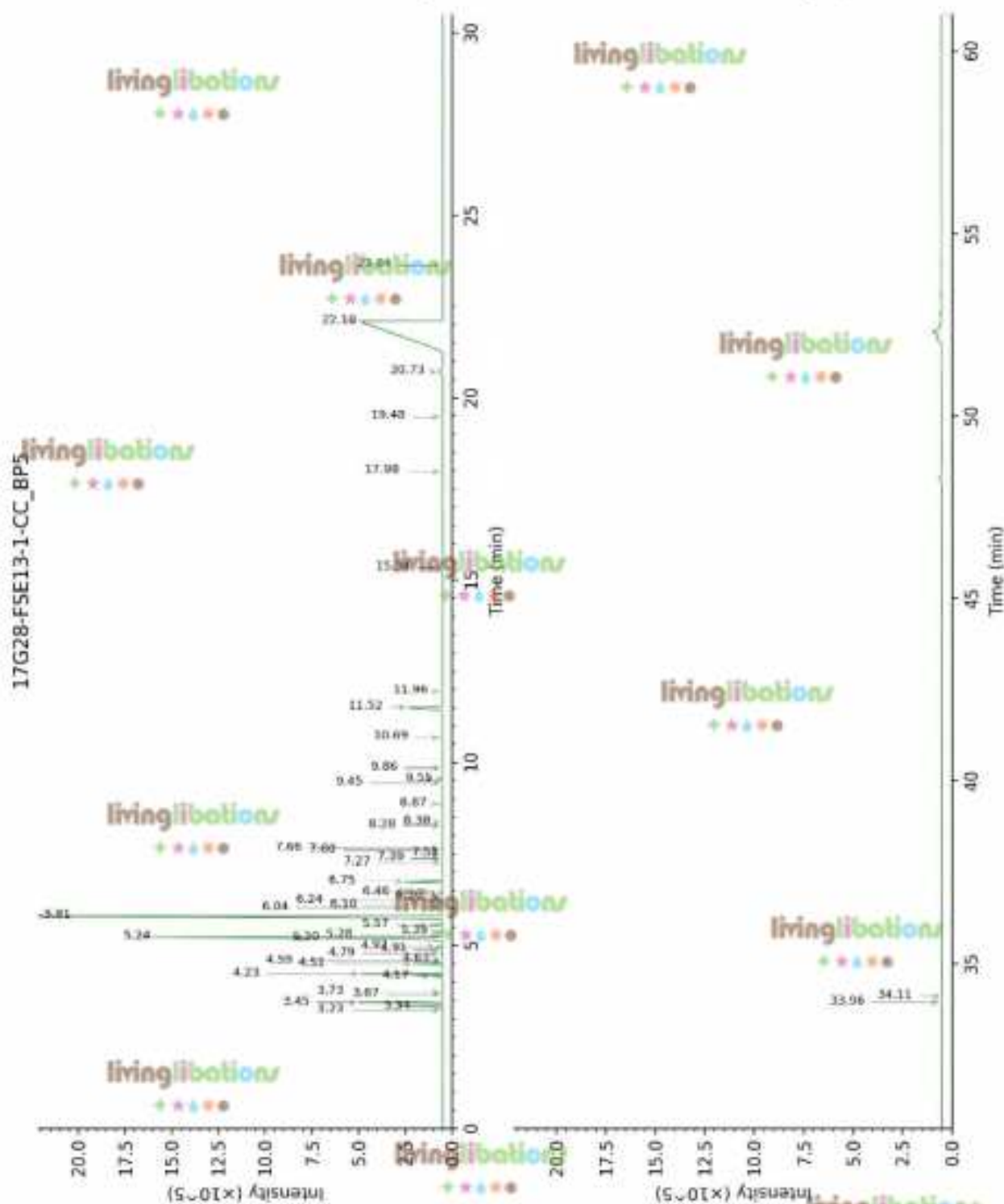
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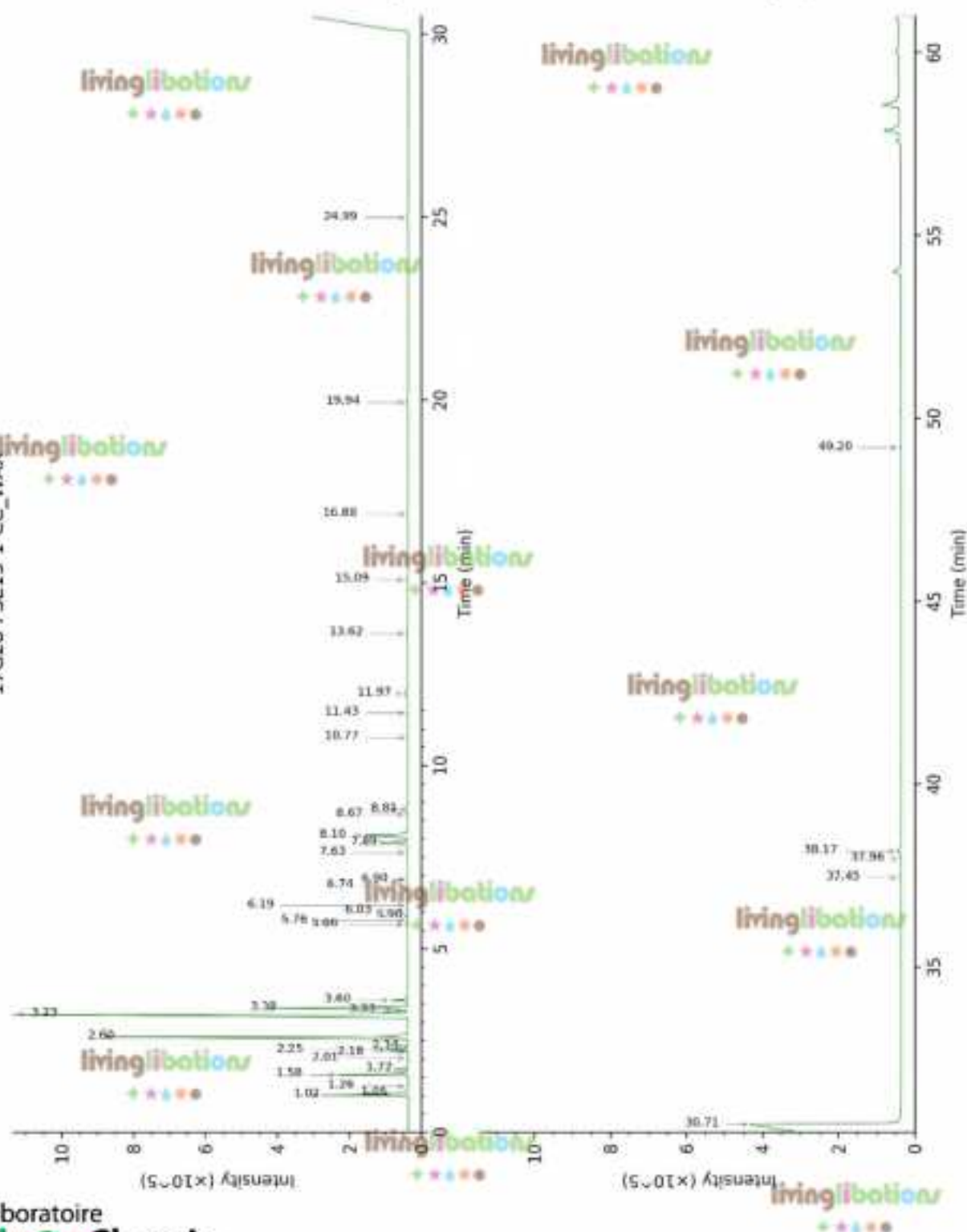


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