

**Date :** March 30, 2017

*SAMPLE IDENTIFICATION*

**Internal code :** 17C27-GUR9-1-DM

**Customer identification :** Patchouli - 0329

**Type :** Essential oil

**Source :** *Pogostemon cablin*

**Customer :** HealthLand LLC.

*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 :** 2017-03-28

Checked and approved by :

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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.	
α-Pinene	3.41	928	0.09	0.08	943	1.16	Monoterpene
Sabinene	4.12	971	tr	tr	1056	1.97	Monoterpene
β-Pinene	4.18	974	0.24	0.22	1038	1.80	Monoterpene
Limonene	5.14	1029	0.02	0.02	1139	2.86	Monoterpene
δ-Elemene	15.20	1323	0.09	2.21	1416	7.07*	Sesquiterpene
α-Copaene	17.57	1359	0.04	0.04	1427	7.34	Sesquiterpene
β-Patchoulene	17.89	1364	2.17	[2.21]	1416	7.07*	Sesquiterpene
β-Elemene	18.76	1377	0.57	13.68	1528	10.01*	Sesquiterpene
Cycloseychellene	19.82	1393	0.62	0.61	1477	8.50	Sesquiterpene
β-Caryophyllene	20.48	1403	3.32	3.01	1519	9.66	Sesquiterpene
α-Guaiene	22.25	1424	13.21	[13.68]	1528	10.01*	Sesquiterpene
Seychellene	22.49	1427	6.70	11.70	1546	10.69*	Sesquiterpene
α-Humulene	23.40*	1438	5.56	0.63	1590	12.29	Sesquiterpene
α-Patchoulene	23.40*	1438	[5.56]	[11.70]	1546	10.69*	Sesquiterpene
γ-Patchoulene	23.59	1440	1.71	1.60	1547	10.75	Sesquiterpene
δ-Patchoulene	23.78	1442	1.03	0.98	1557	11.07	Sesquiterpene
γ-Gurjunene	24.13	1446	0.38	2.81	1621	13.66*	Sesquiterpene
Unknown (m/z = 147, 93 (94), 91 (76), 107 (71), 105 (69), 79 (60)... 189 (24), 204 (23))	25.11	1458	0.40				Sesquiterpene
Germacrene D	25.35	1461	0.10	0.16	1614	13.26	Sesquiterpene
β-Selinene	26.18	1471	0.67	15.59	1637	14.44*	Sesquiterpene
α-Selinene	26.58	1476	0.13	[15.59]	1637	14.44*	Sesquiterpene
Aciphyllene	26.93	1480	2.78	[2.81]	1621	13.66*	Sesquiterpene
δ-Guaiene	27.64	1489	15.68	[15.59]	1637	14.44*	Sesquiterpene
Nootkatene	27.72	1490	0.46	0.42	1693	17.40	Sesquiterpene
7-epi-α-Selinene	28.50	1499	0.59	0.79	1661	15.73*	Sesquiterpene
δ-Cadinene	28.88	1504	0.11	[0.79]	1661	15.73*	Sesquiterpene
Selina-3,7(11)-diene	29.99	1520	0.15	0.14	1670	16.15	Sesquiterpene
Norpatchoulenol	32.63	1556	0.64				Sesquiterp. alcohol
Caryophyllene oxide	33.53	1569	0.46	0.38	1845	27.42	Sesquiterp. ether
1,10-diepi-Cubenol	36.21	1611	0.05	0.05	1964	34.71	Sesquiterp. alcohol
1-epi-Cubenol	36.56	1619	0.77	0.65	1971	35.01	Sesquiterp. alcohol
τ-Cadinol	37.36	1639	0.13	0.10	2080	39.10	Sesquiterp. alcohol
Patchoulol	38.08*	1657	34.78	32.51	2037	37.80	Sesquiterp. alcohol
Pogostol	38.08*	1657	[34.78]	2.18	2098	39.67	Sesquiterp. alcohol
Pogostone	40.48	1720	1.47	1.53	2381	46.56	Lactone
<b>Total identified</b>			<b>94.72%</b>	<b>92.09%</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 :** Orange liquid

**Refractive index :** 1.5075 ± 0.0003 (20 °C)

#### COMPLIANCE WITH ISO 3757:2003 (PATCHOULI)

Compound	Min. %	Max. %	Observed %	Complies?
β-Patchoulene	1.8	3.5	2.2	Yes
α-Copaene	tr	1	0.04	Yes
α-Guaiene	11	16	13.2	Yes
β-Caryophyllene	2	5	3.3	Yes
δ-Guaiene (syn. bulnesene)	13	21	15.7	Yes
Norpatchoulenol	0.35	1	0.6	Yes
Pogostol	1	2.5	2.2	Yes
Patchoulol	27	35	32.5	Yes
<b>Refractive index</b>	1.505	1.515	1.5075	Yes

#### CONCLUSION

No adulterant, contaminant or diluent were detected using this method. The oil comply with the ISO norm.



