

## GC/MS BATCH NUMBER: P20103

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**ESSENTIAL OIL:** PATCHOULI  
**BOTANICAL NAME:** POGOSTEMON CABLIN  
**ORIGIN:** INDONESIA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF PATCHOULI OIL	%
PATCHOULOL	32.1
$\Delta$ -GUAIENE	18.1
$\alpha$ -GUAIENE	15.6
$\alpha$ -PATCHOULENE	5.4
SEYCHELLENE	4.6
$\beta$ -CARYOPHYLLENE	3.2
ACIPHYLLENE	2.8
POGOSTONE	2.5
POGOSTOL	2.1
$\beta$ -PATCHOULENE	2.0
$\gamma$ -PATCHOULENE	1.8
$\beta$ -ELEMENE	1.1
NORPATCHOULENOL	0.5

Comments from Robert Tisserand: This patchouli oil has a very fine odor profile, and it conforms to the 7 key constituents of the ISO standard.

**Date :** November 12, 2015

*SAMPLE IDENTIFICATION*

**Internal code :** 15K05-PTH2-1-LC

**Customer identification :** Patchouli Dark - Indonesia - P2010336R

**Type :** Essential oil

**Source :** *Pogostemon cablin*

**Customer :** Plant Therapy

*ANALYSIS*

**Method :** PC-PA-001-15E06, "Analysis of the composition of a liquid essential oil by GC-FID" (in French).

**Analyst :** Alexis St-Gelais, M. Sc.

**Analysis date :** 2015-11-06

*IDENTIFIED COMPOUNDS*

Identification	Column: BP5			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
$\alpha$ -Pinene	2.79	925	0.09	0.08	986	1.07	Monoterpene
Hexylene glycol	3.26	955	0.22	0.32	1583	11.00	Aliphatic alcohol
$\beta$ -Pinene	3.50	970	0.21	0.20	1064	1.70	Monoterpene
Limonene	4.44	1027	0.02	0.01	1158	2.74	Monoterpene
$\delta$ -Elemene	12.76	1320	0.12	2.00	1431	6.87*	Sesquiterpene
$\beta$ -Patchoulene	14.94*	1358	2.18	[2.00]	1431	6.87*	Sesquiterpene
$\alpha$ -Copaene	14.94*	1358	[2.18]	0.24	1435	6.94	Sesquiterpene
$\beta$ -Elemene	15.86	1374	1.05	15.24	1544	9.74*	Sesquiterpene
Cycloseychellene	16.63	1388	0.57	0.49	1496	8.22	Sesquiterpene
$\beta$ -Caryophyllene	17.26	1399	3.22	2.50	1534	9.39	Sesquiterpene
$\alpha$ -Guaiene	18.90	1421	15.62	[15.24]	1544	9.74*	Sesquiterpene
Seychellene	19.06	1423	4.55	11.01	1562	10.32*	Sesquiterpene
$\alpha$ -Humulene	19.84*	1433	5.41	0.51	1601	11.59	Sesquiterpene
$\alpha$ -Patchoulene	19.84*	1433	[5.41]	[11.01]	1562	10.32*	Sesquiterpene
$\gamma$ -Patchoulene	19.99	1435	1.76	1.71	1565	10.42	Sesquiterpene
$\delta$ -Patchoulene	20.15	1437	0.97	0.91	1575	10.74	Sesquiterpene
9-epi- $\beta$ -Caryophyllene	20.52	1442	0.38	0.20	1678	15.25	Sesquiterpene
$\gamma$ -Gurjunene	21.43*	1454	0.43	0.16	1620	12.49	Sesquiterpene
Unknown (m/z = 147, 93 (94), 91 (76), 107 (71), 105 (69), 79 (60)... 189 (24), 204 (23))	21.43*	1454	[0.43]				Sesquiterpene
$\delta$ -Selinene	22.40	1467	0.67				Sesquiterpene
Aciphyllene	23.14	1477	2.79	2.97	1637	13.30	Sesquiterpene
$\delta$ -Guaiene	23.85*	1486	18.30	18.05	1653	14.07	Sesquiterpene
Valencene	23.85*	1486	[18.30]	0.16	1679	15.31	Sesquiterpene
Nootkatene	24.55	1495	0.20				Sesquiterpene
7-epi- $\alpha$ -Selinene	24.66	1497	0.23				Sesquiterpene
Selina-3,7(11)-diene	25.99	1513	0.12	0.12	1689	15.80	Sesquiterpene
Norpatchoulenol	28.71	1545	0.46	0.53	1985	34.71	Norsesquiterp. alcohol
Isoaromadendrene epoxide?	29.54	1555	0.15				Sesquiterp. ether
Caryophyllene oxide	29.79	1558	0.24	0.22	1859	26.83	Sesquiterp. ether
1,10-diepi-Cubenol	33.59	1606	0.25				Sesquiterp. alcohol
1-epi-Cubenol	34.24	1619	0.59				Sesquiterp. alcohol
Patchoulol	35.85*	1653	34.27	32.05	2055	37.49	Sesquiterp. alcohol
Pogostol	35.85*	1653	[34.27]	2.10	2114	39.44	Sesquiterp. alcohol

Patchoulenone	37.66	1690	0.12				Sesquiterp. ketone
Pogostone	38.86	1721	2.45	2.27	2360	45.52	Lactone
<b>Total identified</b>			<b>97.64%</b>	<b>94.05%</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** : Bright yellow liquid

**Refractive index** :  $1.5070 \pm 0.0003$  (20 °C)

#### *CONCLUSION*

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

Checked and approved by :

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Alexis St-Gelais, M. Sc., chimiste 2013-174

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