

## GC/MS BATCH NUMBER: A10100

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**ESSENTIAL OIL:** ALLSPICE  
**BOTANICAL NAME:** PIMENTA DIOICA  
**ORIGIN:** INDIA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF ALLSPICE OIL	%
EUGENOL	47.1
$\beta$ -CARYOPHYLLENE	10.7
1,8-CINEOLE	9.9
METHYLEUGENOL	6.1
p-CYMENE	5.0
$\alpha$ -PHELLANDRENE	2.3
$\alpha$ -HUMULENE	2.3
LIMONENE	1.6
TERPINOLENE	1.5
$\alpha$ -PINENE	1.3
$\alpha$ -TERPINEOL	1.2

Comments from Robert Tisserand: A good quality allspice oil with constituents in expected amounts.

**Date :** August 26, 2015

*SAMPLE IDENTIFICATION*

**Internal code :** 15H21-PTH3-1-AS

**Customer identification :** Allspice - India - A1010047

**Type :** Essential Oil

**Source :** *Pimenta dioica*

**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 :** 2015-08-23

IDENTIFIED COMPOUNDS

Identification	Colonne: BP5			Colonne: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
Acetone	0.30	483	0.06	0.05	719	0.41	Aliphatic ketone
Toluene	1.00	754	0.03				Simple phenolic
$\alpha$ -Thujene	2.72	920	0.50	0.50	996	1.11	Monoterpene
$\alpha$ -Pinene	2.81	926	1.33	1.28	985	1.06	Monoterpene
Camphene	3.07*	942	0.02	0.01	1024	1.35	Monoterpene
$\alpha$ -Fenchene	3.07*	942	[0.02]	0.00	1017	1.29	Monoterpene
$\beta$ -Pinene	3.52	972	0.10	0.11	1063	1.69	Monoterpene
Myrcene	3.83*	991	0.90	0.85	1135	2.46	Monoterpene
Octan-3-one	3.83*	991	[0.90]	5.02	1230	3.70*	Aliphatic ketone
Octen-3-ol	3.90	995	0.04	0.03	1425	6.73*	Aliphatic alcohol
$\alpha$ -Phellandrene	4.07*	1006	2.62	2.30	1127	2.35	Monoterpene
$\Delta^3$ -Carene	4.07*	1006	[2.62]	0.25	1110	2.15	Monoterpene
Octan-3-ol	4.07*	1006	[2.62]	0.08	1373	5.82	Aliphatic alcohol
$\alpha$ -Terpinene	4.25	1016	0.67	0.63	1140	2.52	Monoterpene
para-Cymene	4.48*	1029	6.63	[5.02]	1230	3.70*	Monoterpene
Limonene	4.48*	1029	[6.63]	1.61	1159	2.75	Monoterpene
1,8-Cineole	4.55	1033	9.91	9.47	1166	2.85	Monoterp. ether
cis- $\beta$ -Ocimene	4.64	1038	0.08	0.37	1207	3.36*	Monoterpene
trans- $\beta$ -Ocimene	4.84	1050	0.23	0.23	1221	3.57	Monoterpene
$\gamma$ -Terpinene	5.00	1059	0.37	[0.37]	1207	3.36*	Monoterpene
Terpinolene	5.46	1085	1.54	1.50	1241	3.86	Monoterpene
para-Cymenene	5.67	1097	0.38	0.38	1391	6.08	Monoterpene
Linalool	5.92	1109	0.16	0.13	1517	8.85	Monoterp. alcohol
Octen-3-yl acetate	6.01	1113	0.06	0.06	1346	5.41	Aliphatic ester
Menthatriene isomer	6.94	1156	0.06				Monoterpene
Terpinen-4-ol	7.55	1184	0.85	0.82	1546	9.81	Monoterp. alcohol
$\alpha$ -Terpineol	8.10*	1205	1.10	1.38	1642	13.56*	Monoterp. alcohol
para-Cymen-8-ol	8.10*	1205	[1.10]	0.41	1792	22.01	Monoterp. alcohol
Methylchavicol	8.30	1211	0.05	0.06	1613	12.18	Phenylpropanoid
Cycloisosativene	14.41	1349	0.05	[0.03]	1425	6.73*	Sesquiterpene
$\alpha$ -Copaene	14.82	1356	0.28	0.32	1439	7.03	Sesquiterpene
Eugenol	15.65	1371	47.11	47.31	2093	38.82	Phenylpropanoid
$\beta$ -Elemene	16.09	1378	0.50	0.49	1536	9.46	Sesquiterpene
$\alpha$ -Gurjunene	16.56	1387	0.17	0.18	1473	7.74	Sesquiterpene
$\beta$ -Caryophyllene	17.53	1403	10.65	10.29	1534	9.39	Sesquiterpene
Aromadendrene	18.19	1411	0.11	0.09	1538	9.54	Sesquiterpene
Methyleugenol	18.78	1419	6.09	5.85	1965	33.56	Phenylpropanoid
$\alpha$ -Humulene	19.89	1434	2.28	2.37	1598	11.49	Sesquiterpene
allo-Aromadendrene	20.06	1436	0.31	0.32	1571	10.62	Sesquiterpene
$\gamma$ -Muurolene	21.38	1453	0.22	0.44	1620	12.51*	Sesquiterpene
$\alpha$ -Amorphene	21.74	1458	0.29	[0.44]	1620	12.51*	Sesquiterpene

$\beta$ -Selinene	22.38	1466	0.45	0.52	1635	13.21	Sesquiterpene
Viridiflorene	22.56	1469	0.13	0.14	1622	12.62	Sesquiterpene
$\alpha$ -Selinene	22.98	1474	0.63	[1.38]	1642	13.56*	Sesquiterpene
$\alpha$ -Muurolene	23.73	1484	0.15	0.20	1654	14.12	Sesquiterpene
$\gamma$ -Cadinene	24.66	1496	0.24	0.29	1679	15.30	Sesquiterpene
$\delta$ -Cadinene	25.32	1505	0.98	0.91	1686	15.66	Sesquiterpene
<i>trans</i> -Calamenene	25.66	1509	0.05	0.04	1742	18.91	Sesquiterpene
Caryophyllene oxide	29.97	1560	0.48	0.44	1860	26.88	Sesquiterp. ether
Humulene epoxide II	32.39	1589	0.06	0.11	1917	30.78	Sesquiterp. ether
<b>Total identified</b>			<b>98.92%</b>	<b>97.84%</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 :** Yellow liquid

**Refractive index :** 1.5165  $\pm$  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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