



**PLANT THERAPY**  
100% PURE ESSENTIAL OILS

## GC/MS BATCH NUMBER: N40102

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**ESSENTIAL OIL:** NUTMEG  
**BOTANICAL NAME:** MYRISTICA FRAGRANS  
**ORIGIN:** INDONESIA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF NUTMEG OIL	%
SABINENE	20.7
$\alpha$ -PINENE	20.1
$\beta$ -PINENE	14.4
MYRISTICIN	10.8
TERPINEN-4-OL	4.6
$\gamma$ -TERPINENE	3.9
LIMONENE	3.7
$\alpha$ -TERPINENE	2.7
MYRCENE	2.3
$\beta$ -PHELLANDRENE	2.0
SAFROLE	1.8
$\alpha$ -THUJENE	1.8
TERPINOLENE	1.5

Comments from Robert Tisserand: Clean, spice-wood odor profile. All nine key ISO constituents are within range.

**Date :** January 26, 2017

*SAMPLE IDENTIFICATION*

**Internal code :** 17A17-PTH8-1-DM

**Customer identification :** Nutmeg - Indonesia - N40102612R

**Type :** Essential Oil

**Source :** *Myristica fragrans*

**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 :** 2017-01-25

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.	
Tricyclene	3.15	916	0.02	0.01	921	1.14	Monoterpene
$\alpha$ -Thujene	3.25	921	1.75	2.48	960	1.31	Monoterpene
$\alpha$ -Pinene	3.38	930	20.48	20.14	954	1.29	Monoterpene
$\alpha$ -Fenchene	3.61	944	0.05	0.10	986	1.50	Monoterpene
Camphene	3.63	945	0.30	0.32	994	1.56	Monoterpene
Sabinene	4.11	975	20.71	20.92	1076	2.18	Monoterpene
$\beta$ -Pinene	4.17	979	14.35	14.37	1049	1.99	Monoterpene
Myrcene	4.42	994	2.30	2.23	1120	2.73	Monoterpene
Pseudolimonene	4.62	1006	0.04	0.04	1115	2.66	Monoterpene
$\alpha$ -Phellandrene	4.68*	1008	1.69	0.68	1113	2.63	Monoterpene
$\Delta^3$ -Carene	4.68*	1008	[1.69]	0.94	1099	2.44	Monoterpene
$\alpha$ -Terpinene	4.87	1018	2.65	2.61	1127	2.83	Monoterpene
Limonene	5.11*	1030	4.70	3.71	1145	3.07	Monoterpene
para-Cymene	5.11*	1030	[4.70]	0.88	1212	4.00	Monoterpene
$\beta$ -Phellandrene	5.14	1031	1.99	2.16	1151	3.15*	Monoterpene
1,8-Cineole	5.16	1032	0.11	[2.16]	1151	3.15*	Monoterp. ether
cis- $\beta$ -Ocimene	5.28	1039	0.01	tr	1184	3.59	Monoterpene
trans- $\beta$ -Ocimene	5.46	1048	0.03	0.02	1205	3.88	Monoterpene
$\gamma$ -Terpinene	5.66	1058	3.94	3.91	1194	3.72	Monoterpene
cis-Sabinene hydrate	6.01	1077	0.35	0.35	1407	7.20	Monoterp. alcohol
Terpinolene	6.12	1082	1.54	1.50	1227	4.22	Monoterpene
para-Cymenene	6.33	1094	0.06	0.06	1370	6.45	Monoterpene
Linalool	6.64*	1106	0.43	0.35	1498	9.50	Monoterp. alcohol
trans-Sabinene hydrate	6.64*	1106	[0.43]	0.26	1487	9.13*	Monoterp. alcohol
cis-para-Menth-2-en-1-ol	7.15	1125	0.18	[0.26]	1487	9.13*	Monoterp. alcohol
trans-para-Menth-2-en-1-ol	7.68	1144	0.11	0.11	1558	11.77	Monoterp. alcohol
Borneol	8.61	1179	0.02	0.02	1619	14.49	Monoterp. alcohol
Terpinen-4-ol	8.74	1183	4.63	4.81	1530	10.70	Monoterp. alcohol
$\alpha$ -Terpineol	9.38	1203	0.74	0.68	1623	14.73	Monoterp. alcohol
$\gamma$ -Terpineol	9.70	1210	0.01	0.01	1636	15.35	Monoterp. alcohol
trans-Piperitol	9.88	1214	0.06	0.05	1670	17.22	Monoterp. alcohol
Bornyl acetate	12.70	1277	0.10	0.10	1505	9.73	Monoterp. ester
Safrole	13.45	1294	1.78	1.73	1764	23.28	Phenylpropanoid
Unknown (m/z = 121, 77 (19), 178 (17), 122 (13))	14.06	1304	0.33				
$\alpha$ -Cubebene	15.67	1328	0.06	0.07	1403	7.08	Sesquiterpene
$\alpha$ -Terpinyl acetate	16.40	1339	0.13	0.16	1613	14.21	Monoterp. ester
Citronellyl acetate	16.99	1348	0.06	0.05	1601	13.54	Monoterp. ester
$\alpha$ -Copaene	17.36	1354	0.31	0.27	1426	7.66	Sesquiterpene
Eugenol	17.58	1357	0.32	0.32	2064	39.48	Phenylpropanoid
Geranyl acetate	19.10	1379	0.16	0.15	1691	18.31	Monoterp. ester

$\beta$ -Caryophyllene	20.22	1396	0.04	0.04	1515	10.12	Sesquiterpene
Methyleugenol	21.40	1410	0.36	0.32	1936	34.57	Phenylpropanoid
<i>trans</i> - $\alpha$ -Bergamotene	21.77	1415	0.10	0.07	1522	10.38	Sesquiterpene
( <i>E</i> )-Isoeugenol	25.09	1455	0.77	0.74	2239	44.10	Phenylpropanoid
$\beta$ -Bisabolene	28.70	1499	0.04	0.04	1652	16.23	Sesquiterpene
$\delta$ -Cadinene	28.89	1501	0.11	0.10	1669	17.14	Sesquiterpene
Myristicin	31.38	1536	10.76	10.76	2150	41.90*	Phenylpropanoid
Elemicin	33.70	1567	0.36	[10.76]	2150	41.90*	Phenylpropanoid
Methoxyeugenol	36.32	1610	0.39	0.39	2439	48.49	Phenylpropanoid
Myristic acid	43.19	1800	0.15	0.16	2627	52.17	Fatty acid
<b>Total identified</b>			<b>99.25%</b>	<b>99.19%</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 :** Faintly yellow liquid

**Refractive index :**  $1.4820 \pm 0.0003$  (20 °C)

#### CONCLUSION

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



