



PLANT THERAPY
100% PURE ESSENTIAL OILS

GC/MS BATCH NUMBER: A20101

ESSENTIAL OIL: STAR ANISE
BOTANICAL NAME: ILLICIUM VERUM
ORIGIN: CHINA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF STAR ANISE OIL	%
(E)-ANETHOLE	89.2
LIMONENE	2.5
METHYL CHAVICOL (estagole)	2.0

Comments from Robert Tisserand: Classic aniseed odor. All 13 key constituents meet the ISO standards.

Date : January 27, 2017

SAMPLE IDENTIFICATION

Internal code : 17A23-PTH9-1-DM

Customer identification : Star Anise - A2010164R

Type : Essential Oil

Source : *Illicium verum*

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 : 2017-01-27

Checked and approved by :

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.	
Furfural	2.19	847	0.01	0.01	1397	6.95	Furan
α -Thujene	3.24	921	0.01	0.02	955	1.29	Monoterpene
α -Pinene	3.34	927	0.26	0.24	944	1.24	Monoterpene
Camphene	3.63	945	0.01	0.01	993	1.55	Monoterpene
Sabinene	4.06	972	0.03	0.02	1065	2.11	Monoterpene
β -Pinene	4.12	976	0.03	0.03	1043	1.93	Monoterpene
Myrcene	4.40	993	0.12	0.12	1118	2.70	Monoterpene
α -Phellandrene	4.67*	1007	0.51	0.17	1111	2.61	Monoterpene
Δ 3-Carene	4.67*	1007	[0.51]	0.31	1097	2.42	Monoterpene
α -Terpinene	4.86	1017	0.08	0.08	1125	2.80	Monoterpene
Limonene	5.10*	1029	2.60	2.48	1144	3.05	Monoterpene
para-Cymene	5.10*	1029	[2.60]	0.10	1211	3.98	Monoterpene
β -Phellandrene	5.12	1030	0.43	0.61	1149	3.13*	Monoterpene
1,8-Cineole	5.15	1032	0.15	[0.61]	1149	3.13*	Monoterp. ether
cis- β -Ocimene	5.27	1038	0.01	0.01	1188	3.65	Monoterpene
trans- β -Ocimene	5.45	1048	0.05	0.05	1204	3.87	Monoterpene
γ -Terpinene	5.64	1057	0.11	0.11	1192	3.69	Monoterpene
cis-Linalool oxide (fur.)	5.94	1073	0.01	0.01	1381	6.63	Monoterp. alcohol
Terpinolene	6.11	1082	0.12	0.11	1225	4.19	Monoterpene
trans-Linalool oxide (fur.)	6.25	1089	tr	tr	1406	7.17	Monoterp. alcohol
para-Cymenene	6.33	1093	0.02	0.01	1369	6.44	Monoterpene
Linalool	6.64	1106	0.61	0.64	1498	9.46	Monoterp. alcohol
para-Vinylanisole	7.98	1155	0.01				Phenylpropanoid
Terpinen-4-ol	8.68	1181	0.19	0.20	1527	10.60	Monoterp. alcohol
Methylchavicol	9.37*	1203	2.18	2.01	1586	12.83	Phenylpropanoid
α -Terpineol	9.37*	1203	[2.18]	0.15	1622	14.66	Monoterp. alcohol
(Z)-Anethole	11.63	1253	0.28	0.30	1664	16.86	Phenylpropanoid
Geraniol	11.82	1257	0.02	0.03	1782	24.44	Monoterp. alcohol
para-Anisaldehyde	12.39	1270	0.30	0.34	1892	32.53	Simple phenolic
(E)-Anethole	14.00	1303	89.24	89.35	1736	21.38	Phenylpropanoid
α -Copaene	17.39	1354	0.08	0.06	1426	7.65	Sesquiterpene
para-Methyl anisate	19.08	1379	0.04	0.03	1970	36.13	Phenolic ester
Geranyl acetate	19.40	1384	0.05	0.08	1693	18.42	Monoterp. ester
para-Acetonylanisole	19.84	1391	0.12	0.14	2033	38.48	Phenylpropanoid
cis- α -Bergamotene	20.24*	1396	0.41	0.12	1506	9.78	Sesquiterpene
β -Caryophyllene	20.24*	1396	[0.41]	0.26	1514	10.11	Sesquiterpene
trans- α -Bergamotene	21.78	1415	0.33	0.33	1521	10.34	Sesquiterpene
α -Humulene	22.99	1430	0.02	0.03	1592	13.05	Sesquiterpene
Viridiflorene	25.98	1465	0.03	0.05	1609	13.99	Sesquiterpene
γ -Cadinene	28.39	1494	0.10	0.07	1654	16.36	Sesquiterpene
δ -Cadinene	28.87	1501	0.03	0.04	1671	17.26	Sesquiterpene

Methyl (<i>E</i>)-isoeugenol	29.60	1511	0.03	0.03	2090	40.29	Phenylpropanoid
(<i>E</i>)-Nerolidol	33.66	1567	0.07	0.06	1979	36.54	Sesquiterp. alcohol
Globulol	34.08	1573	0.02	0.02	1965	35.89	Sesquiterp. alcohol
para-Methoxyphenyl-1,2-propanediol epimer	35.85	1599	0.02				
para-Methoxyphenyl-1,2-propanediol epimer II	36.28	1609	0.01				
τ -Cadinol	37.33	1635	0.01	0.01	2079	39.93	Sesquiterp. alcohol
(<i>Z</i>)-Foeniculin?	37.68	1643	0.01				
α -Cadinol	37.91	1649	0.03	0.03	2122	41.16	Sesquiterp. alcohol
(<i>E</i>)-Foeniculin	39.24	1681	0.79	0.73	2156	42.07	
Total identified			99.59%	99.61%			

*: 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 : Clear liquid

Refractive index : 1.5520 \pm 0.0003 (20 °C)

CONCLUSION

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



