



PLANT THERAPY
100% PURE ESSENTIAL OILS

GC/MS BATCH NUMBER: D80102

ESSENTIAL OIL: DAVANA
BOTANICAL NAME: ARTEMISIA PALLENS
ORIGIN: INDIA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF DAVANA OIL	%
cis-DAVANONE	49.5
ETHYL (E)-CINNAMATE	6.
BICYCLOGERMACRENE	5.0
DAVANA ETHER II	2.9
DAVANA ETHER I	1.6
ETHYL (Z)-CINNAMATE	1.6
DAVANONE B	1.5
β-SELINENE	1.4
ARTEDOUGLASIA OXIDE C	1.4
SPATHULENOL	1.3

Comments from Robert Tisserand: Sweet tobacco-apricot odor profile. The lab report looks good, and the oil has 50% davanone, the major constituent.

Date : November 22, 2016

SAMPLE IDENTIFICATION

Internal code : 16K14-PTH19-1-DM

Customer identification : Davana - D8010263R

Type : Essential oil

Source : *Artemisia pallens*

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 : 2016-11-21

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.	
Ethyl 2-methylbutyrate	2.22	843	0.12	0.13	971	0.97	Aliphatic ester
Ethyl isovalerate	2.30	850	0.09	0.08	1009	1.12	Aliphatic ester
5-Ethyl-2-methyl-2-vinyltetrahydrofuran	3.04	905	0.07	0.08	996	1.07	Furan
2-Methyl-2,5-divinyltetrahydrofuran	3.16	912	0.06				Furan
α -Pinene	3.36	925	0.01	0.01	940	0.84	Monoterpene
Unknown arbusculone derivative I	3.66	943	0.44	0.43	1058	1.52	Furan
Propyl 2-methylbutyrate	3.71	946	0.21	0.19	1075	1.65	Aliphatic ester
Propyl isovalerate	3.81	952	0.14	0.14	1095	1.81	Aliphatic ester
5,5-Dimethyl-2(5H)-furanone	4.07	968	0.11	0.10	1635	11.44	Lactone
Benzaldehyde	4.18	974	0.03	0.03	1429	6.22	Simple phenolic
Isobutyl 2-methylbutyrate	4.69	1005	0.03	0.02	1141	2.28	Aliphatic ester
Unknown arbusculone derivative II	4.80	1011	0.17	0.15	1152	2.42	Furan
α -Terpinene	4.88	1015	0.04	0.03	1117	2.00	Monoterpene
Isoamyl isobutyrate	4.94	1019	0.02	0.02	1145	2.33	Aliphatic ester
Unknown arbusculone derivative III	5.07	1025	0.41	0.33	1181	2.75	Furan
Limonene	5.09	1027	0.02	0.03	1138	2.25	Monoterpene
<i>cis</i> - β -Ocimene	5.29	1038	tr	0.14	1199	2.96*	Monoterpene
<i>trans</i> - β -Ocimene	5.47	1048	0.01	0.01	1194	2.91	Monoterpene
Lavender lactone	5.58	1054	0.09	0.36	1616	10.78*	Lactone
γ -Terpinene	5.65*	1058	0.14	[0.14]	1199	2.96*	Monoterpene
<i>cis</i> -Arbusculone	5.65*	1058	[0.14]	0.05	1365	5.25	Furan
<i>trans</i> -Arbusculone	6.01	1077	0.17	0.15	1399	5.74	Furan
Terpinolene	6.12	1083	0.02	0.02	1217	3.18	Monoterpene
Isoamyl 2-methylbutyrate	6.48	1101	0.01	0.01	1227	3.32	Aliphatic ester
2-Methylbutyl 2-methylbutyrate	6.55	1103	0.21	0.21	1230	3.35	Aliphatic ester
Linalool	6.66	1107	0.57	0.54	1483	7.22	Monoterp. alcohol
Isoamyl isovalerate	6.69	1108	0.12	0.10	1246	3.58	Aliphatic ester
2-Methylbutyl isovalerate	6.75	1111	0.10				Aliphatic ester
<i>cis</i> -para-Menth-2-en-1-ol	7.16	1126	0.02	0.03	1487	7.30	Monoterp. alcohol
<i>trans</i> -para-Menth-2-en-1-ol	7.72	1147	0.04	0.04	1569	9.37	Monoterp. alcohol
Terpinen-4-ol	8.69	1183	0.24	0.17	1531	8.23	Monoterp. alcohol
nor-Davanone	10.27	1224	0.20	0.70	1559	9.07*	Furan
Methyl hydrocinnamate	12.28	1268	0.03				Phenylpropanoid ester
Methyl (<i>Z</i>)-cinnamate	14.52	1311	0.14	0.10	1828	21.31	Phenylpropanoid ester

Bicycloelemene	14.79	1315	0.06	0.06	1422	6.09	Sesquiterpene
Ethyl hydrocinnamate	17.00	1349	0.12				Phenylpropanoid ester
Eugenol	17.61	1359	0.14	0.11	2046	35.05	Phenylpropanoid
β -Elemene	18.65	1375	0.20	0.54	1523	8.00*	Sesquiterpene
Ethyl (Z)-cinnamate	19.20	1383	1.59	3.18	1886	25.19*	Phenylpropanoid ester
Geranyl acetate	19.81	1392	0.70	0.79	1684	13.60	Monoterp. ester
Methyl (E)-cinnamate	20.28	1399	0.21	0.25	1971	30.69	Phenylpropanoid ester
β -Caryophyllene	21.03	1408	0.37	[0.54]	1523	8.00*	Sesquiterpene
cis-threo-Davanafuran	21.65	1415	0.18				Furan
Aromadendrene	21.81	1417	0.02	0.04	1536	8.36	Sesquiterpene
α -Humulene	23.06	1432	0.08	0.07	1590	10.00	Sesquiterpene
allo-Aromadendrene	23.32	1435	0.50	[0.70]	1559	9.07*	Sesquiterpene
trans- β -Farnesene	24.35	1448	0.09	1.51	1628	11.18*	Sesquiterpene
Unknown davanone analog	24.50	1450	0.10				Furan
Germacrene D	25.29	1459	0.88	0.74	1622	10.97	Sesquiterpene
β -Selinene	25.93	1467	1.44	[1.51]	1628	11.18*	Sesquiterpene
Viridiflorene	26.12	1469	0.38	[0.36]	1616	10.78*	Sesquiterpene
Ethyl (E)-cinnamate	26.65	1475	6.58	3.87	2012	33.12	Phenylpropanoid ester
Bicyclogermacrene	26.79	1476	5.00	8.17	1646	11.95	Sesquiterpene
Davana ether I	27.50	1485	1.61				Sesquiterp. ether
γ -Cadinene	28.36	1496	0.43	0.33	1667	12.85	Sesquiterpene
δ -Cadinene	29.00	1504	0.15	0.16	1671	13.07	Sesquiterpene
Davana ether II	29.32	1509	2.86				Sesquiterp. ether
Artedouglasia oxide C	29.53	1512	1.40				Sesquiterp. ketone
Artedouglasia oxide A	29.81	1515	0.37				Sesquiterp. ketone
Davanone B isomer	32.61	1554	0.51				Sesquiterp. ketone
Davanone B	33.16	1561	1.54	[3.18]	1886	25.19*	Sesquiterp. ketone
(E)-Nerolidol	33.54	1566	0.43	0.35	1991	31.88	Sesquiterp. alcohol
Davanone D	34.02	1573	0.59				Sesquiterp. ketone
Spathulenol	34.18	1575	1.26	1.40	2022	33.65	Sesquiterp. alcohol
cis-Davanone	35.19	1589	49.51	49.34	1958	29.94	Sesquiterp. ketone
Unknown (m/z = 95, 67 (59), 93 (41), 41 (32), 109 (32)...))	36.20	1609	0.59				
Isospathulenol	36.97	1628	0.34	0.45	2145	38.44	Sesquiterp. alcohol
τ -Cadinol	37.45*	1640	1.22	0.92	2069	35.85	Sesquiterp. alcohol
τ -Muurolol	37.45*	1640	[1.22]	0.18	2083	36.31	Sesquiterp. alcohol
β -Eudesmol	37.75*	1647	1.75	0.29	2105	37.05	Sesquiterp. alcohol
α -Eudesmol	37.75*	1647	[1.75]	0.56	2110	37.24	Sesquiterp. alcohol
Unknown (m/z = 95, 67 (59), 41 (43), 93 (40), 161 (38)... 204 (14), 219 (3), 234 (1)))	37.75*	1647	[1.75]				

α -Cadinol	38.02	1654	0.74	0.46	2124	37.70	Sesquiterp. alcohol
Unknown (m/z = 163, 43 (47), 121 (16)... 234 (6))	39.24	1682	1.15	0.84	2290	42.13	
β -Davanone-2-ol	40.97	1733	0.56	0.53	2516	46.82	Sesquiterp. alcohol
Total identified	89.73%			79.54%			

*: 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 : 1.4863 \pm 0.0003 (20 °C)

CONCLUSION

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

