

GC/MS BATCH NUMBER: Y20102

ESSENTIAL OIL: YLANG YLANG EXTRA
BOTANICAL NAME: CANANGA ODORATA
ORIGIN: MADAGASCAR

KEY CONSTITUENTS PRESENT IN THIS BATCH OF YLANG YLANG EXTRA OIL	%
BENZYL ACETATE	12.2
GERMACRENE D	10.6
β-CARYOPHYLLENE	9.4
LINALOOL	9.0
BENZYL BENZOATE	7.5
para-METHYLANISOLE	7.3
GERANYL ACETATE	6.4
(E,E)-α-FARNESENE	5.0
METHYL BENZOATE	4.8
(E)-CINNAMYL ACETATE	3.8
BENZYL SALICYLATE	3.5
α-HUMULENE	3.0
δ-GUAIENE	1.4
δ-CADINENE	1.3
(2E,6E)-FARNESOL	1.0
PRENYL ACETATE	1.0

Comments from Robert Tisserand: A beautiful, heady floral odor quality. Apart from linalool being a little low, it meets all 15 ISO standards for Ylang Ylang extra from Madagascar.

Date : March 31, 2017

SAMPLE IDENTIFICATION

Internal code : 17C08-PTH14-1-DM

Customer identification : Ylang Extra - Madagascar - Y2010268R

Type : Essential oil

Source : *Cananga odorata*

Customer : Plant Therapy

ANALYSIS

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

Analyst : Benoit Roger Ph. D.

Analysis date : 2017-03-27

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.	
Isoamyl acetate	2.70	882	0.03	0.02	1064	2.05	Aliphatic ester
3-Methyl-3-buten-1-yl acetate	2.78	888	0.47	0.46	1141	2.89	Aliphatic ester
Prenyl acetate	3.40*	928	1.24	1.03	1200	3.68*	Aliphatic ester
α -Pinene	3.40*	928	[1.24]	0.17	947	1.18	Monoterpene
β -Pinene	4.18	974	0.10	0.08	1041	1.83	Monoterpene
Myrcene	4.45	990	0.09	0.08	1117	2.58	Monoterpene
<i>cis</i> -Hex-3-en-1-yl acetate	4.85	1013	0.08	0.08	1263	4.60	Aliphatic ester
Hexyl acetate	4.99	1020	0.13	0.13	1223	4.01	Aliphatic ester
para-Methylanisole	5.13	1028	7.29	7.01	1368	6.21	Simple phenolic
Limonene	5.21	1033	0.14	0.14	1147	2.98	Monoterpene
<i>cis</i> - β -Ocimene	5.32	1038	0.01	tr	1189	3.53	Monoterpene
<i>trans</i> - β -Ocimene	5.53	1050	0.12	[1.03]	1200	3.68*	Monoterpene
<i>cis</i> -Linalool oxide (fur.)	5.96	1074	0.01	0.01	1379	6.39	Monoterp. alcohol
<i>trans</i> -Linalool oxide (fur.)	6.28	1091	0.02	0.02	1416	7.07	Monoterp. alcohol
Methyl benzoate	6.54	1104	4.75	4.72	1534	10.25*	Phenolic ester
Linalool	6.66	1108	8.96	8.79	1501	9.10	Monoterp. alcohol
Benzyl acetate	8.40	1172	12.18	12.55	1644	14.86	Phenolic ester
Ethyl benzoate	8.50	1175	0.04	0.08	1578	11.87	Phenolic ester
para-Cymen-8-ol	9.12	1198	0.09	0.95	1786	23.26*	Monoterp. alcohol
α -Terpineol	9.26	1202	0.14	9.60	1625	13.87*	Monoterp. alcohol
Methyl salicylate	9.34	1204	0.03	1.75	1676	16.50*	Phenolic ester
Geraniol	11.63	1254	0.85	[0.95]	1786	23.26*	Monoterp. alcohol
Phenylethyl acetate	11.76	1257	0.08	0.05	1725	19.22	Phenolic ester
Prenyl hexanoate	13.23	1290	0.22	0.05	1530	10.11	Aliphatic ester
1-Nitro-2-phenylethane	14.26	1309	0.02				Simple phenolic
δ -Elemene	14.87	1318	0.02	0.03	1418	7.12	Sesquiterpene
Thymol	15.19	1323	0.04	0.04	2112	40.11	Monoterp. alcohol
α -Cubebene	15.83	1333	0.10	0.08	1423	7.24	Sesquiterpene
Eugenol	17.16	1353	0.61	0.55	2067	38.71	Phenylpropanoid
α -Copaene	17.53	1358	0.88	0.89	1431	7.42	Sesquiterpene
β -Cubebene	18.49	1373	0.07	0.09	1474	8.47	Sesquiterpene
β -Elemene	18.71	1376	0.19	9.64	1525	9.89*	Sesquiterpene
Geranyl acetate	19.33	1386	6.44	11.03	1698	17.66*	Monoterp. ester
β -Caryophyllene	20.53	1403	9.41	[9.64]	1525	9.89*	Sesquiterpene
β -Copaene	21.29	1412	0.20	0.17	1508	9.27	Sesquiterpene
<i>trans</i> - α -Bergamotene	21.50	1415	0.01	[4.72]	1534	10.25*	Sesquiterpene
<i>cis</i> -Muurolo-3,5-diene	22.76*	1430	0.21	0.11	1553	10.91	Sesquiterpene
<i>cis</i> - β -Farnesene	22.76*	1430	[0.21]	0.11	1587	12.23	Sesquiterpene
α -Humulene	23.19	1435	2.95	3.08	1584	12.09	Sesquiterpene
allo-Aromadendrene	23.76	1442	0.08	0.09	1561	11.23	Sesquiterpene

<i>trans</i> - β -Farnesene	24.35	1449	0.04	1.06	1613	13.24*	Sesquiterpene
(<i>E</i>)-Cinnamyl acetate	24.73*	1454	4.11	3.75	2048	38.10	Phenylpropanoid ester
(<i>E</i>)-Isoeugenol	24.73*	1454	[4.11]	0.40	2241	43.44	Phenylpropanoid
γ -Muuroleone	24.81	1455	0.09	[1.06]	1613	13.24*	Sesquiterpene
Germacrene D	25.52*	1463	10.55	[9.60]	1625	13.87*	Sesquiterpene
α -Amorphene	25.52*	1463	[10.55]	[1.06]	1613	13.24*	Sesquiterpene
β -Selinene	26.12	1470	0.14	[9.60]	1625	13.87*	Sesquiterpene
Bicyclgermacrene	26.58*	1476	0.50	0.41	1646	14.93*	Sesquiterpene
α -Selinene	26.58*	1476	[0.50]	0.15	1628	13.97	Sesquiterpene
Valencene	27.10	1482	0.04	0.03	1661	15.73	Sesquiterpene
α -Muuroleone	27.33	1485	0.49	[0.41]	1646	14.93*	Sesquiterpene
δ -Guaiane	27.64	1489	1.35	1.20	1631	14.15	Sesquiterpene
(<i>Z,E</i>)- α -Farnesene	27.80	1491	0.45	[1.75]	1676	16.50*	Sesquiterpene
γ -Cadinene	28.33	1497	0.46	0.61	1669	16.12	Sesquiterpene
(<i>E,E</i>)- α -Farnesene	28.97	1505	5.01	[11.03]	1698	17.66*	Sesquiterpene
δ -Cadinene	29.09	1507	1.27	[1.75]	1676	16.50*	Sesquiterpene
<i>trans</i> -Calamenene	29.25	1509	0.07	0.03	1735	19.94	Sesquiterpene
<i>trans</i> -Cadina-1,4-diene	30.12	1521	0.11	0.11	1705	18.01	Sesquiterpene
α -Cadinene	30.45	1526	0.13	[11.03]	1698	17.66*	Sesquiterpene
<i>trans</i> - α -Bisabolene	31.28	1537	0.04	[11.03]	1698	17.66*	Sesquiterpene
α -Elemol	32.08	1549	0.03	0.04	1998	36.28	Sesquiterp. alcohol
Caryophyllene oxide	33.49*	1568	0.16	0.05	1849	27.70	Sesquiterp. ether
(<i>E</i>)-Nerolidol	33.49*	1568	[0.16]	0.06	1995	36.13	Sesquiterp. alcohol
Spathulenol	33.49*	1568	[0.16]	0.03	2015	37.01	Sesquiterp. alcohol
Viridiflorol	34.43	1581	0.05	0.03	1986	35.71	Sesquiterp. alcohol
Guaiol	34.98	1589	0.03	0.05	2005	36.56	Sesquiterp. alcohol
Junenol	35.66	1599	0.20	0.14	1929	33.16	Sesquiterp. alcohol
1,10-diepi-Cubenol	36.34	1614	0.12				Sesquiterp. alcohol
1-epi-Cubenol	36.66	1622	0.05	0.04	1974	35.18	Sesquiterp. alcohol
Cubenol	36.96	1629	0.08	0.07	1950	34.12	Sesquiterp. alcohol
τ -Cadinol	37.18	1635	0.25	0.25	2075	38.96	Sesquiterp. alcohol
τ -Muurolol	37.30	1638	0.44	0.41	2091	39.45	Sesquiterp. alcohol
α -Muurolol	37.43	1641	0.16	0.17	2105	39.90	Sesquiterp. alcohol
Himachalol	37.61	1645	0.12	0.12	2096	39.60	Sesquiterp. alcohol
α -Cadinol	37.75	1649	0.81	0.86	2130	40.62	Sesquiterp. alcohol
(<i>2E,6E</i>)-Farnesol	40.47	1719	1.04	1.17	2290	44.59	Sesquiterp. alcohol
Benzyl benzoate	42.11	1771	7.49	7.86	2490	48.80*	Phenolic ester
(<i>2E,6E</i>)-Farnesyl acetate	44.05	1838	0.95	0.93	2197	42.35	Sesquiterp. ester
Benzyl salicylate	44.95	1870	3.47	3.58	2633	51.56	Phenolic ester
Geranyl benzoate	47.33	1963	0.08	[7.86]	2490	48.80*	Phenolic ester
Total identified			98.68%	97.29%			

*: 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 : Light yellow liquid

Refractive index : 1.5005 ± 0.0003 (20 °C)

CONCLUSION

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



