

## GC/MS BATCH NUMBER: Y20100

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**ESSENTIAL OIL:** YLANG YLANG EXTRA  
**BOTANICAL NAME:** CANANGA ODORATA  
**ORIGIN:** INDONESIA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF YLANG YLANG EXTRA OIL	%
GERMACRENE D	17.4
BENZYL ACETATE	10.6
(E,E)- $\alpha$ -FARNESENE	10.2
LINALOOL	6.8
BENZYL BENZOATE	6.8
p-METHYLANISOLE	5.6
GERANYL ACETATE	5.0
$\beta$ -CARYOPHYLENE	4.7
(E)-CINNAMYL ACETATE	4.5
BENZYL SALICYLATE	3.9
METHYL BENZOATE	3.6
(2E,6E)-FARNESYL ACETATE	2.6
(2E,6E)-FARNESOL	2.0
$\alpha$ -HUMULENE	1.6
$\alpha$ -CADINOL	1.1
(E)-ISOEUGENOL	1.1
PRENYL ACETATE	1.0

Comments from Robert Tisserand: An unusual and complex Ylang Ylang oil, "extra" quality, with a rich and heady floral tone.

**Date :** September 11, 2015

*SAMPLE IDENTIFICATION*

**Internal code :** 15I03-PTH7-1-HM

**Customer identification :** Ylang Ylang Extra - Indonesia - Y2010044

**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).  
Identifications double-checked by GC-MS.

**Analyst :** Alexis St-Gelais, M. Sc.

**Analysis date :** 2015-09-07

IDENTIFIED COMPOUNDS

Identification	Colonne: BP5			Colonne: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
Acetone	0.30	484	0.01	0.01	717	0.41	Aliphatic ketone
2-Methyl-3-buten-2-ol	0.42	532	0.05	0.05	1010	1.22	Aliphatic alcohol
Butyl acetate	1.15	781	0.01				Aliphatic ester
Isoamyl acetate	2.18	881	0.02	0.03	1093	1.96	Aliphatic ester
3-Methyl-3-buten-1-yl acetate	2.28	889	0.48	0.61	1163	2.81*	Aliphatic ester
$\alpha$ -Pinene	2.80	926	0.17	0.17	984	1.06	Monoterpene
Prenyl acetate	2.86	929	1.04	1.04	1222	3.58	Aliphatic ester
$\beta$ -Pinene	3.52	971	0.06	0.06	1063	1.69	Monoterpene
Myrcene	3.82	991	0.04	0.04	1134	2.45	Monoterpene
6-Methyl-5-hepten-2-one	3.90	996	0.03	0.03	1300	4.72	Aliphatic ketone
<i>cis</i> -Hex-3-en-1-yl acetate	4.21	1014	0.10	0.09	1284	4.49	Aliphatic ester
Hexyl acetate	4.34	1021	0.15	0.15	1242	3.88	Aliphatic ester
para-Methylanisole	4.50*	1030	5.76	5.58	1392	6.10	Simple phenolic
1,8-Cineole	4.50*	1030	[5.76]	[0.61]	1163	2.81*	Monoterp. ether
Limonene	4.50*	1030	[5.76]	0.01	1157	2.73	Monoterpene
<i>trans</i> - $\beta$ -Ocimene	4.84	1049	0.01	0.00	1214	3.47	Monoterpene
Benzyl alcohol	4.99	1058	0.08	0.09	1806	22.95	Simple phenolic
2,3-butanediol diacetate	5.16	1068	0.04				Aliphatic ester
p-Cresol	5.43	1083	0.01				Simple phenolic
Methyl benzoate	5.84	1106	3.61	3.65	1555	10.08	Phenolic ester
Linalool	5.97*	1111	7.11	6.81	1518	8.89	Monoterp. alcohol
Nonanal	5.97*	1111	[7.11]	0.03	1357	5.57	Monoterp. aldehyde
Benzyl acetate	7.37	1175	10.64	10.49	1666	14.71	Phenolic ester
Ethyl benzoate	7.43	1178	0.09				Phenolic ester
Methyl salicylate	7.94	1201	0.12	1.53	1687	15.69*	Phenolic ester
$\alpha$ -Terpineol	8.07	1204	0.10	0.06	1645	13.68	Monoterp. alcohol
Phenylethyl acetate	10.03	1257	0.22	0.12	1743	18.99	Phenolic ester
Geraniol	10.11	1259	0.14	0.29	1804	22.79	Monoterp. alcohol
( <i>E</i> )-Anethole	11.41	1295	0.31	0.31	1749	19.35	Phenylpropanoid
1-Nitro-2-phenylethane	12.34	1313	0.08				Simple phenolic
Thymol	12.81*	1321	0.08	0.04	2137	40.07	Monoterp. alcohol
$\delta$ -Elemene	12.81*	1321	[0.08]	0.05	1432	6.88	Sesquiterpene
$\alpha$ -Cubebene	13.36	1331	0.06	0.08	1416	6.56	Sesquiterpene
$\alpha$ -Ylangene	14.41*	1349	0.12	0.06	1428	6.80	Monoterp. ester
Benzyl butyrate	14.41*	1349	[0.12]	0.05	1863	27.07	Phenolic ester
$\alpha$ -Copaene	14.80	1356	0.71	0.68	1439	7.03	Sesquiterpene
Eugenol	15.14	1362	0.03	0.02	2093	38.80	Phenylpropanoid
$\beta$ -Cubebene	15.66	1371	0.18	0.21	1489	8.07	Sesquiterpene
$\beta$ -Elemene	15.92	1375	0.23	0.25	1535	9.44	Sesquiterpene
Geranyl acetate	16.56*	1387	4.95	3.73	1714	17.19	Monoterp. ester

β-Caryophyllene	17.36	1401	4.72	4.48	1532	9.35	Sesquiterpene
β-Copaene	18.10	1410	0.16	0.12	1513	8.73	Sesquiterpene
α-Humulene	19.78	1432	1.58	1.67	1597	11.46	Sesquiterpene
(E)-Cinnamyl acetate	21.86*†	1460	24.16	4.52	2069	37.98	Phenylpropanoid ester
(E)-Isoeugenol	21.86*†	1460	[24.16]	1.07	2264	43.35	Phenylpropanoid
Germacrene D	22.11*†	1463	[24.16]	17.38	1636	13.27*	Sesquiterpene
α-Amorphene	22.11*†	1463	[24.16]	0.72	1622	12.59	Sesquiterpene
Bicyclgermacrene	22.94*	1474	0.62	0.40	1652	14.03	Sesquiterpene
γ-Amorphene	22.94*	1474	[0.62]	[1.53]	1687	15.69*	Sesquiterpene
α-Muurolene + δ-Amorphene	23.71*	1484	0.45	0.32	1656	14.20	Sesquiterpene
4-epi-Cubebol	23.71*	1484	[0.45]	0.05	1815	23.60	Sesquiterp. alcohol
γ-Cadinene	24.63	1496	0.35	0.39	1679	15.32	Sesquiterpene
(E,E)-α-Farnesene	25.41*	1506	10.98	10.16	1712	17.06*	Sesquiterpene
δ-Cadinene	25.41*	1506	[10.98]	[1.53]	1687	15.69*	Sesquiterpene
trans-Calamenene	25.72	1509	0.03	0.03	1746	19.16	Sesquiterpene
α-Cadinene	26.03	1513	0.04	[10.16]	1712	17.06*	Sesquiterpene
Eugenyl acetate	27.68	1533	0.05	0.04	2187	41.44	Phenylpropanoid ester
Caryophyllene oxide	29.91*	1559	0.13	0.16	1858	26.74	Sesquiterp. ether
Spathulenol	29.91*	1559	[0.13]	0.02	2033	36.70	Sesquiterp. alcohol
Guaiol	32.31	1588	0.12	0.21	2016	36.13	Sesquiterp. alcohol
Junenol	32.96	1596	0.10	0.13	1944	32.34	Sesquiterp. alcohol
1,10-diepi-Cubenol	33.67	1608	0.06	0.09	1962	33.38	Sesquiterp. alcohol
τ-Cadinol	35.11	1637	0.24	0.38	2086	38.58	Sesquiterp. alcohol
τ-Muurolol	35.24	1640	0.57	0.49	2100	39.06	Sesquiterp. alcohol
α-Muurolol	35.39	1643	0.20	0.32	2117	39.53	Sesquiterp. alcohol
α-Cadinol	35.79	1651	1.14	1.13	2144	40.28	Sesquiterp. alcohol
(2E,6E)-Farnesol	38.88	1722	1.98	1.67	2307	44.35	Sesquiterp. alcohol
α-Sinensal	39.82	1750	0.04				Sesquiterp. aldehyde
Benzyl benzoate	40.58	1772	6.80	6.75	2511	48.65	Phenolic ester
(2E,6E)-Farnesyl acetate	42.60	1838	2.60	2.50	2210	42.06	Sesquiterp. ester
Benzyl salicylate	43.54	1871	3.89	3.92	2647	51.41	Phenolic ester
<b>Total identified</b>			<b>97.85%</b>	<b>95.54%</b>			

\*: Two or more compounds are coeluting on this column

†: The peak apexes were resolved, but the peaks partly coeluted and were summed for analysis

[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 :**  $1.5060 \pm 0.0003$  (20 °C)

### CONCLUSION

No adulterant, contaminant or diluent were detected using this method. This includes the peculiar but natural compounds p-cresol and 1-nitro-2-phenylethane.

Checked and approved by :

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Alexis St-Gelais, M. Sc., chimiste 2013-174

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