

## GC/MS BATCH NUMBER: Y20100

**ESSENTIAL OIL:** YLANG YLANG COMPLETE ORGANIC  
**BOTANICAL NAME:** CANANGA ODORATA  
**ORIGIN:** COMOROS

KEY CONSTITUENTS PRESENT IN THIS BATCH OF YLANG YLANG COMPLETE ORGANIC OIL	%
GERMACRENE D	22.0
(E,E)- $\alpha$ -FARNESENE	19.2
$\beta$ -CARYOPHYLLENE	6.5
BENZYL BENZOATE	5.8
(2E,6E)-FARNESYL ACETATE	3.8
BENZYL SALICYLATE	3.7
LINALOOL	3.5
$\delta$ -CADINENE	3.1
BENZYL ACETATE	3.0
GERANYL ACETATE	2.5
para-METHYLANISOLE	2.2
(2E,6E)-FARNESOL	2.0
$\alpha$ -HUMULENE	1.9
(E)-CINNAMYL ACETATE	1.9
$\alpha$ -CADINOL	1.7
$\alpha$ -AMORPHENE	1.7
$\alpha$ -COPAENE	1.4
METHYL BENZOATE	1.4

Comments from Robert Tisserand:  
 Excellent odor profile - rich, sweet,  
 heady floral, with constituents in  
 expected amounts.

**Date :** August 1, 2016

*SAMPLE IDENTIFICATION*

**Internal code :** 16G22-PTH1-1-SM

**Customer identification :** Ylang Complete Organic - Y201005510R

**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 :** Sylvain Mercier, M. Sc., chimiste

**Analysis date :** 2016-08-01

Checked and approved by :

---

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

*Note: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.*

*This report is digitally signed, it is only considered valid if the digital signature is intact.*

IDENTIFIED COMPOUNDS

Identification	Column: BP5			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
3-Methyl-3-buten-1-yl acetate	2.75	890	0.17	0.17	1133	2.25	Aliphatic ester
$\alpha$ -Pinene	3.34	929	0.24	0.23	945	0.88	Monoterpene
Prenyl acetate	3.38	931	0.27	0.27	1193	2.95	Aliphatic ester
Sabinene	4.12	975	0.07	0.06	1038	1.39	Monoterpene
$\beta$ -Pinene	4.17	979	0.01				Monoterpene
Myrcene	4.40	993	0.05	0.04	1113	2.02	Monoterpene
<i>cis</i> -Hex-3-en-1-yl acetate	4.81	1016	0.03	0.01	1260	3.83	Aliphatic ester
Hexyl acetate	4.93	1023	0.05	0.05	1220	3.29	Aliphatic ester
para-Methylanisole	5.09*	1032	2.18	2.21	1362	5.30	Simple phenolic
Limonene	5.09*	1032	[2.18]	0.02	1138	2.31	Monoterpene
1,8-Cineole	5.15	1035	0.10	0.08	1143	2.36	Monoterp. ether
<i>trans</i> - $\beta$ -Ocimene	5.45	1051	0.01	0.01	1200	3.04	Monoterpene
Methyl benzoate	6.52	1108	1.37	8.43	1527	8.33*	Phenolic ester
Linalool	6.67	1114	3.51	3.56	1493	7.56	Monoterp. alcohol
Benzyl acetate	8.34	1176	3.02	3.55	1634	11.86*	Phenolic ester
Ethyl benzoate	8.45	1180	0.04	0.04	1580	9.96	Phenolic ester
para-Cymen-8-ol	9.12	1204	0.04	0.04	1783	19.47	Monoterp. alcohol
$\alpha$ -Terpineol	9.32	1209	0.08	21.96	1631	11.70*	Monoterp. alcohol
Geraniol	11.82	1265	0.20	0.21	1777	19.10	Monoterp. alcohol
Prenyl hexanoate	13.26	1297	0.09	[8.43]	1527	8.33*	Aliphatic ester
1-Nitro-2-phenylethane	14.51	1318	0.05				Simple phenolic
$\delta$ -Elemene	15.01	1327	0.13	0.11	1427	6.32	Sesquiterpene
$\alpha$ -Cubebene	15.64	1336	0.22	0.20	1413	6.04	Sesquiterpene
$\alpha$ -Ylangene	16.86*	1355	0.14	0.05	1420	6.18	Sesquiterpene
Benzyl butyrate	16.86*	1355	[0.14]	0.05	1839	22.94	Phenolic ester
$\alpha$ -Copaene	17.34	1363	1.44	1.47	1436	6.47	Sesquiterpene
Eugenol	17.56	1366	0.04	0.03	2062	36.31	Phenylpropanoid
$\beta$ -Cubebene	18.30	1377	0.20	0.18	1478	7.27	Sesquiterpene
$\beta$ -Elemene	18.56	1381	0.36	[8.43]	1527	8.33*	Sesquiterpene
Geranyl acetate	19.17	1391	2.53	2.57	1690	14.36*	Monoterp. ester
$\beta$ -Caryophyllene	20.29	1407	6.46	[8.43]	1527	8.33*	Sesquiterpene
<i>trans</i> - $\alpha$ -Bergamotene	21.08	1416	0.30	[8.43]	1527	8.33*	Sesquiterpene
<i>cis</i> - $\beta$ -Farnesene	22.53	1434	0.22	2.19	1584	10.08*	Sesquiterpene
$\alpha$ -Humulene	22.97	1439	1.92	[2.19]	1584	10.08*	Sesquiterpene
allo-Aromadendrene	23.60	1447	0.14	0.09	1555	9.20	Sesquiterpene
( <i>E</i> )-Isoeugenol	24.63	1459	0.16	0.18	2229	41.39	Phenylpropanoid
( <i>E</i> )-Cinnamyl acetate	24.91	1463	1.87	1.84	2029	35.17	Phenylpropanoid ester
Germacrene D	25.46*	1469	24.14	[21.96]	1631	11.70*	Sesquiterpene
$\alpha$ -Amorphene	25.46*	1469	[24.14]	1.67	1618	11.11	Sesquiterpene
$\beta$ -Selinene	25.82	1474	0.02	[3.55]	1634	11.86*	Sesquiterpene

Bicyclogermacrene	25.97	1476	0.27	0.51	1635	11.92	Sesquiterpene
$\alpha$ -Selinene	26.43	1481	0.96	[3.55]	1634	11.86*	Sesquiterpene
$\alpha$ -Muurolene	27.17	1490	0.82	0.78	1648	12.49	Sesquiterpene
$\delta$ -Guaiene	27.32	1492	0.27	0.40	1640	12.12	Sesquiterpene
(Z,E)- $\alpha$ -Farnesene	27.88	1499	0.18	3.25	1677	13.76*	Sesquiterpene
$\gamma$ -Cadinene	28.20	1502	0.79	0.62	1670	13.48	Sesquiterpene
(E,E)- $\alpha$ -Farnesene	29.04*	1514	22.03	19.16	1702	14.86	Sesquiterpene
$\delta$ -Cadinene	29.04*	1514	[22.03]	[3.25]	1677	13.76*	Sesquiterpene
<i>trans</i> -Calamenene	29.04*	1514	[22.03]	0.09	1727	16.14	Sesquiterpene
<i>trans</i> -Cadina-1,4-diene	30.02	1527	0.17	[2.57]	1690	14.36*	Sesquiterpene
$\alpha$ -Cadinene	30.35	1532	0.24	0.18	1706	15.09	Sesquiterpene
Caryophyllene oxide	33.47	1574	0.08	0.10	1842	23.19	Sesquiterp. ether
(E)-Nerolidol	33.65	1577	0.12	0.13	2001	33.57	Sesquiterp. alcohol
Viridiflorol	34.01	1582	0.06	0.05	1978	32.17	Sesquiterp. alcohol
Guaiol	34.84	1593	0.04	0.03	1995	33.20	Sesquiterp. alcohol
Junenol	35.67	1606	0.48	0.30	1919	28.63	Sesquiterp. alcohol
1,10-diepi-Cubenol	36.35	1622	0.23	0.26	1947	30.32	Sesquiterp. alcohol
Cubenol	36.74	1632	0.17	0.22	1952	30.61	Sesquiterp. alcohol
$\tau$ -Cadinol	37.28	1645	0.53	0.52	2067	36.49	Sesquiterp. alcohol
$\tau$ -Muurolol	37.43	1648	0.90	0.83	2083	37.05	Sesquiterp. alcohol
$\alpha$ -Muurolol	37.55	1651	0.33	0.36	2097	37.57	Sesquiterp. alcohol
Himachalol	37.70	1655	0.25	0.26	2087	37.20	Sesquiterp. alcohol
$\alpha$ -Cadinol	37.90	1660	1.70	1.69	2120	38.37	Sesquiterp. alcohol
(2Z,6Z)-Farnesol	38.46	1673	0.19	3.93	2193	40.37*	Sesquiterp. alcohol
(2E,6Z)-Farnesol	39.14	1690	0.17				Sesquiterp. alcohol
(2E,6E)-Farnesol	40.63	1732	1.97	2.03	2281	42.60	Sesquiterp. alcohol
Benzyl benzoate	42.19	1783	5.80	5.92	2469	46.63	Phenolic ester
(2E,6E)-Farnesyl acetate	44.07	1847	3.76	[3.93]	2193	40.37*	Sesquiterp. ester
Benzyl salicylate	45.05	1883	3.67	3.68	2613	49.42	Phenolic ester
<b>Total identified</b>			<b>98.05%</b>	<b>96.87%</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 :** Light yellow liquid

**Refractive index :** 1.5068  $\pm$  0.0003 (20 °C)

#### CONCLUSION

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



