

**Date :** April 7, 2017

*SAMPLE IDENTIFICATION*

**Internal code :** 17C22-PTH2-1-DM

**Customer identification :** Blue Cypress - Australia - BG0104611R

**Type :** Essential oil

**Source :** *Callitris intratropica*

**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 :** 2017-04-03

Checked and approved by :

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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.	
Tricyclene	3.22	917	0.05	0.05	918	1.06	Monoterpene
α-Pinene	3.41	928	0.88	0.81	943	1.16	Monoterpene
α-Fenchene	3.67	944	0.02	0.02	989	1.39	Monoterpene
Camphene	3.69	945	0.07	0.06	996	1.45	Monoterpene
Thuja-2,4(10)-diene	3.78	950	0.02	0.02	1056	1.97*	Monoterpene
Sabinene	4.10	970	0.01	[0.02]	1056	1.97*	Monoterpene
β-Pinene	4.18	974	0.03	0.02	1038	1.80	Monoterpene
Myrcene	4.43	989	tr	0.01	1114	2.54	Monoterpene
Δ3-Carene	4.73*	1006	0.43	0.39	1085	2.28	Monoterpene
α-Phellandrene	4.73*	1006	[0.43]	0.01	1108	2.46	Monoterpene
α-Terpinene	4.92	1016	0.01	0.01	1121	2.63	Monoterpene
para-Cymene	5.09	1026	0.06	0.06	1206	3.77	Monoterpene
Limonene	5.14	1029	0.16	0.15	1139	2.87	Monoterpene
β-Phellandrene	5.17	1030	0.03	0.06	1145	2.94*	Monoterpene
1,8-Cineole	5.21	1033	0.03	[0.06]	1145	2.94*	Monoterp. ether
γ-Terpinene	5.69	1059	0.01	0.01	1187	3.49	Monoterpene
<i>P. mariana</i> biomarker‡	5.98	1075	0.02	0.02	1449	7.86	Monoterp. alcohol
Terpinolene	6.17*	1085	0.09	0.03	1222	3.99	Monoterpene
meta-Cymenene	6.17*	1085	[0.09]	0.04	1358	6.06	Monoterpene
para-Cymenene	6.35	1095	0.07	0.06	1366	6.17	Monoterpene
endo-Fenchol	7.01	1121	0.02	1.14	1521	9.75*	Monoterp. alcohol
Limona ketone	7.19	1127	0.02	0.02	1471	8.40	Simple phenolic
trans-Pinocarveol	7.48	1138	0.11	0.11	1567	11.45	Monoterp. alcohol
Camphor	7.57	1141	0.02	0.04	1425	7.29	Monoterp. ketone
Pinocamphone	8.13	1162	0.02	0.01	1437	7.58	Monoterp. ketone
Isoborneol	8.16	1163	0.01	1.22	1595	12.48*	Monoterp. alcohol
Borneol	8.45	1173	0.10	0.12	1618	13.47	Monoterp. alcohol
Terpinen-4-ol	8.66	1181	0.03	0.03	1531	10.14	Monoterp. alcohol
Myrtenal	9.22*	1201	0.06	0.08	1529	10.04	Monoterp. aldehyde
para-Cymen-8-ol	9.22*	1201	[0.06]	0.08	1765	21.91	Monoterp. alcohol
α-Terpineol	9.26	1202	0.28	2.32	1624	13.79*	Monoterp. alcohol
Verbenone	9.69	1211	0.16	0.98	1602	12.76*	Monoterp. ketone
Eucarvone	9.83	1214	0.04				Monoterp. ketone
2-Caren-10-al?	11.09	1242	0.22				Monoterp. aldehyde
3-Caren-10-al?	11.23	1245	0.12				Monoterp. aldehyde
Methyl myrtenate	13.58	1298	0.02				Monoterp. ester
β-Elemene	18.74*	1377	3.97	[1.14]	1521	9.75*	Sesquiterpene
Myrtenoic acid	18.74*	1377	[3.97]	3.90	2309	45.00	Monoterp. acid
β-Caryophyllene	18.74*	1377	[3.97]	[1.14]	1521	9.75*	Sesquiterpene
α-Guaiene	21.43	1414	0.05	[1.14]	1521	9.75*	Sesquiterpene

Unknown (m/z = 79, 105 (70), 77 (68), 91 (66), 123 (62))	21.91	1420	0.37				Monoterp. acid
Unknown (m/z = 79, 121 (78), 105 (77), 91 (66), 123 (51))	22.25	1424	0.35				Monoterp. acid
$\alpha$ -Humulene	23.13	1434	0.19	[1.22]	1595	12.48*	Sesquiterpene
4,5-diepi-Aristolochene	23.49	1439	0.31	[1.22]	1595	12.48*	Sesquiterpene
Dehydroaromadendrene?	24.76	1454	1.57	1.41	1645	14.90	Sesquiterpene
Unknown (m/z = 189, 105 (80), 133 (77), 91 (76), 204 (51))	24.91	1456	0.87	[0.98]	1602	12.76*	Sesquiterpene
Liguloxide or agarofuran analog	25.61	1464	1.09	[1.22]	1595	12.48*	Sesquiterp. ether
$\beta$ -Selinene	25.99	1469	2.42	[2.32]	1624	13.79*	Sesquiterpene
$\alpha$ -Selinene	26.63	1476	1.94	2.43	1631	14.16*	Sesquiterpene
$\delta$ -Guaiane	27.27	1484	0.55	[2.43]	1631	14.16*	Sesquiterpene
Selina-3,7(11)-diene	30.08	1521	0.12	0.08	1689	17.22	Sesquiterpene
$\alpha$ -Cadinene	30.35	1524	0.14	0.13	1697	17.61	Sesquiterpene
$\alpha$ -Elemol	32.19	1550	1.67	1.65	1995	36.15	Sesquiterp. alcohol
Guaiol	35.26	1593	13.95	13.92	2007	36.64	Sesquiterp. alcohol
Rosifoliol analog?	35.63*	1598	0.76	0.48	2020	37.23	Sesquiterp. alcohol
10-epi- $\gamma$ -Eudesmol	35.63*	1598	[0.76]	0.10	1981	35.51	Sesquiterp. alcohol
Unknown (m/z = 43, 81 (100), 135 (77), 204 (72), 67 (70), 71 (68), 189 (63), 207 (62), 95 (61)... 222 (5))	35.89	1603	0.35	0.33	2027	37.46	
Eremoligenol	36.51	1618	0.61	0.62	2078	39.03	Sesquiterp. alcohol
$\gamma$ -Eudesmol	36.79	1625	6.97	7.17	2071	38.83	Sesquiterp. alcohol
Hinesol	36.98	1630	0.31	18.52	2116	40.21*	Sesquiterp. alcohol
$\beta$ -Eudesmol	37.76	1649	11.12	[18.52]	2116	40.21*	Sesquiterp. alcohol
Selin-11-en-4- $\alpha$ -ol	37.84*	1651	1.49	0.43	2135	40.77	Sesquiterp. alcohol
$\alpha$ -Eudesmol	37.84*	1651	[1.49]	2.42	2117	40.25	Sesquiterp. alcohol
Bulnesol	38.26	1661	9.93	[18.52]	2116	40.21*	Sesquiterp. alcohol
epi- $\beta$ -Bisabolol	38.69	1672	0.30	0.30	2084	39.21	Sesquiterp. alcohol
$\beta$ -Bisabolol	38.76	1673	0.14	0.12	2062	38.55	Sesquiterp. alcohol
$\alpha$ -Bisabolol	39.14	1683	0.23	0.29	2145	41.03*	Sesquiterp. alcohol
Chamazulene	40.51	1721	0.25	0.20	2239	43.40	Azulene
$\gamma$ -Costol	41.14	1740	2.25	2.23	2396	46.88	Sesquiterp. alcohol
Unknown (m/z = 91, 105 (71), 79 (52), 77 (50), 93 (47), 143 (47)... 218 (9))	41.31	1746	0.58				Oxygenated sesquiterpene
$\beta$ -Costol	41.84	1763	1.92	3.19	2454	48.08*	Sesquiterp. alcohol
Guaiazulene	41.97*	1767	1.62	0.14	2266	44.00	Azulene

$\alpha$ -Costol	41.97*	1767	[1.62]	[3.19]	2454	48.08*	Sesquiterp. alcohol
Unknown lactone (m/z = 233, 91 (76), 173 (66), 105 (54), 79 (47), 201 (46), 93 (44), 145 (44), 248 (41))	42.15	1773	0.32	[0.29]	2145	41.03*	Sesquiterp. lactone
Callitrin isomer	42.83	1794	0.47	0.59	2479	48.60	Sesquiterp. lactone
Callitrin	43.49	1817	1.73	1.81	2490	48.79	Sesquiterp. lactone
Callitrisin isomer I	44.43	1851	1.24	1.23	2506	49.12	Sesquiterp. lactone
Unknown (m/z = 159, 131 (22), 91 (20), 119 (18), 105 (17), 232 (15))	45.32	1884	0.39	0.39	2527	49.53	Sesquiterp. lactone
Dihydrocolumellarin	45.74	1899	11.71	11.53	2548	49.94	Sesquiterp. lactone
Unknown (m/z = 219, 107 (33), 91 (29), 145 (24), 93 (23), 105 (22), 234 (20))	45.86	1904	0.29	0.59	2565	50.26	Sesquiterp. lactone
Columellarin isomer?	46.61	1934	1.64	1.85	2649	51.84	Sesquiterp. lactone
Callitrisin isomer II	46.71	1938	0.45	0.56	2698	52.74	Sesquiterp. lactone
Columellarin	46.86*	1944	1.67	0.95	2656	51.97	Sesquiterp. lactone
Callitrisin	46.86*	1944	[1.67]	0.78	2724	53.21	Sesquiterp. lactone
Dihydrocallitrisin	47.06	1952	0.22				Sesquiterp. lactone
<b>Total identified</b>			<b>88.22%</b>	<b>87.01%</b>			

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

[xx]: Duplicate percentage due to coelutions, not taken account in the identified total

‡: Also characteristic of a number of other conifers.

Note: no correction factor was applied

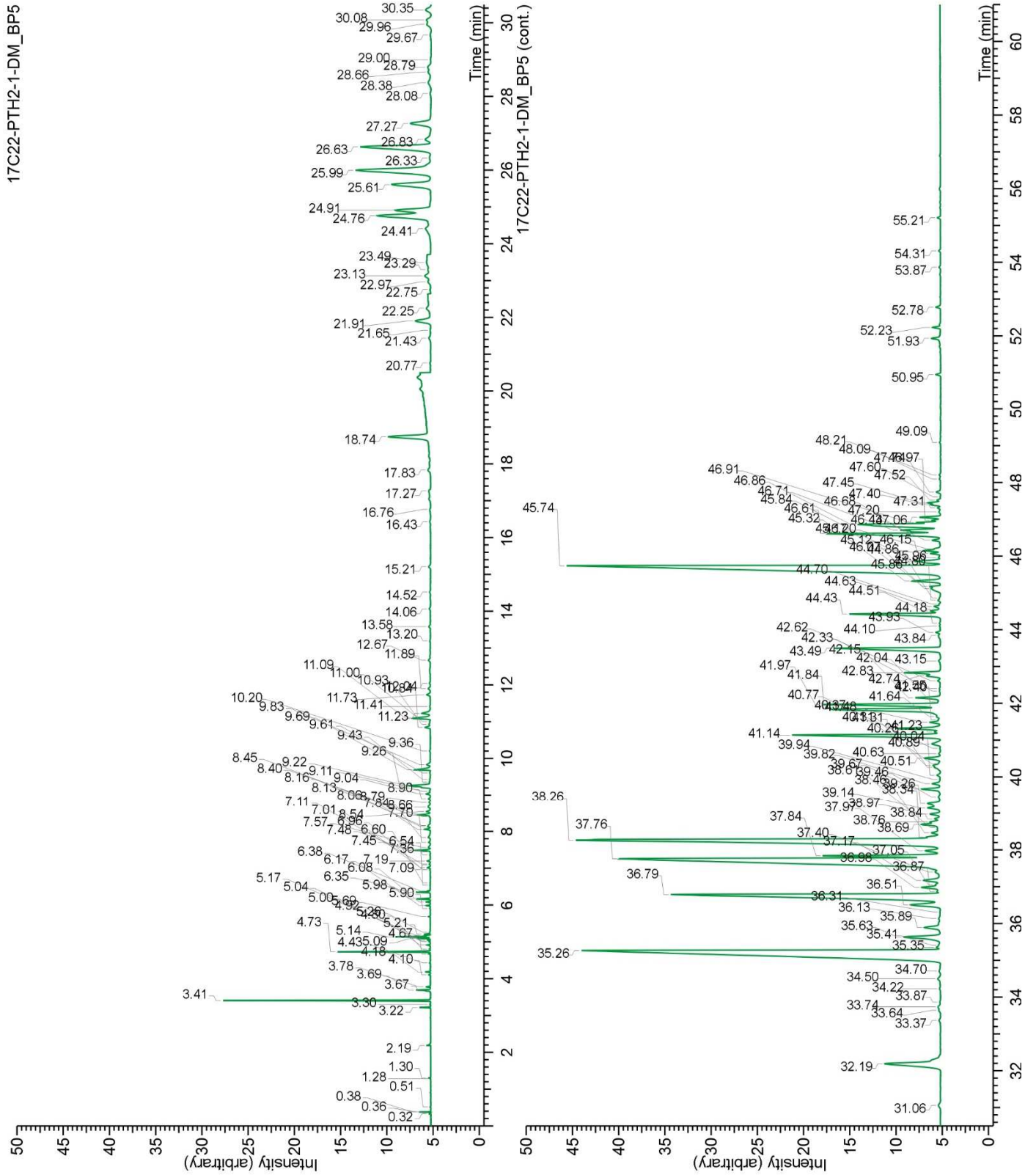
#### OTHER DATA

**Physical aspect :** Blue liquid

**Refractive index :** 1.5058  $\pm$  0.0003 (20 °C)

#### CONCLUSION

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



17C22-PTH2-1-DM\_WAX

