

GC/MS BATCH NUMBER: BG0105

ESSENTIAL OIL: BLUE CYPRESS
BOTANICAL NAME: CALLITRIS INTRATROPICA
ORIGIN: AUSTRALIA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF BLUE CYPRESS OIL	%
GUAIOL	12.3
β-EUDESOL	10.7
BULNESOL	10.7
DIHYDROCOLUMELLARIN	10.2
γ-EUDESOL	7.1
MYRTENOIC ACID	3.6
α-SELINENE	2.1
β-SELINENE	2.6
γ-COSTOL	2.2
α-COSTOL	1.8
CALLITRIN	1.7
α-ELEMOL	1.6
SELIN-11-en-4-α-ol	1.5
β-COSTOL	1.4
α-PINENE	1.4
LIGULOXIDE OR AGAROFURAN ANALOG	1.3
CALLITRISIN ISOMER I	1.1

Comments from Robert Tisserand:
Woody, earthy, balmy odor
quality. Constituents are in
expected amounts.

Date : November 17, 2017

SAMPLE IDENTIFICATION

Internal code : 17K14-PTH2-1-CC

Customer identification : Blue Cypress - Australia - BG010573R

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).

Identifications double-checked by GC-MS

Analyst : Sylvain Mercier, M. Sc., chimiste

Analysis date : 2017-11-15

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.	
Tricyclene	3.22	915	0.06	0.05	920	1.04	Monoterpene
α -Thujene	3.31	920	0.01	1.29	945	1.14*	Monoterpene
α -Pinene	3.42	926	1.35	[1.29]	945	1.14*	Monoterpene
α -Fenchene	3.68	942	0.02	0.02	991	1.36	Monoterpene
Camphene	3.70	943	0.08	0.07	998	1.42	Monoterpene
Thuja-2,4(10)-diene	3.80	949	0.03	0.02	1051	1.93*	Monoterpene
Sabinene	4.13	968	0.01	[0.02]	1051	1.93*	Monoterpene
β -Pinene	4.20	972	0.04	0.04	1037	1.78	Monoterpene
Δ^3 -Carene	4.75	1005	0.50	0.44	1077	2.25	Monoterpene
α -Terpinene	4.94	1015	0.02	0.01	1121	2.62	Monoterpene
para-Cymene	5.13	1025	0.07	0.06	1206	3.75	Monoterpene
Limonene	5.16	1027	0.22	0.30	1138	2.85*	Monoterpene
β -Phellandrene	5.20	1029	0.04	[0.30]	1138	2.85*	Monoterpene
1,8-Cineole	5.22	1030	0.04	[0.30]	1138	2.85*	Monoterp. ether
γ -Terpinene	5.71	1057	0.02	0.01	1187	3.49	Monoterpene
PIMA 1	6.00	1073	0.02	0.03	1445	7.75	Monoterp. alcohol
Terpinolene	6.19	1083	0.05	0.07	1221	3.97	Monoterpene
para-Cymenene	6.42	1095	0.09	0.08	1363	6.12	Monoterpene
endo-Fenchol	7.16	1123	0.03	0.02	1511	9.43	Monoterp. alcohol
Limona ketone	7.26	1127	0.03	0.02	1467	8.29	Simple phenolic
<i>trans</i> -Pinocarveol	7.62	1140	0.15	0.20	1561	11.26	Monoterp. alcohol
Camphor	7.77	1145	0.01	0.02	1432	7.47	Monoterp. ketone
Pinocamphone	8.14	1158	0.05	0.07	1421	7.21	Monoterp. ketone
Borneol	8.64	1177	0.12	0.16	1614	13.35	Monoterp. alcohol
Terpinen-4-ol	8.80	1182	0.03	1.45	1521	9.81*	Monoterp. alcohol
para-Cymen-8-ol	9.24	1198	0.03	0.03	1758	21.55	Monoterp. alcohol
Myrtenal	9.32	1200	0.08	[1.45]	1521	9.81*	Monoterp. aldehyde
α -Terpineol	9.48	1203	0.24	0.28	1617	13.50	Monoterp. alcohol
Verbenone	9.83	1211	0.18	1.40	1603	12.79*	Monoterp. ketone
Eucarvone	9.96	1214	0.05				Monoterp. ketone
2-Caren-10-al?	11.28	1243	0.13				Monoterp. aldehyde
3-Caren-10-al?	11.43	1246	0.08				Monoterp. aldehyde
Methyl myrtenate	13.72	1297	0.03				Monoterp. ester
β -Elemene	18.94	1376	0.92	[1.45]	1521	9.81*	Sesquiterpene
Myrtenoic acid	21.65	1413	3.57	3.72	2295	44.78	Monoterp. acid
α -Guaiene	22.08	1418	0.41	[1.45]	1521	9.81*	Sesquiterpene
Unknown (m/z = 79, 105 (70), 77 (68), 91 (66), 123 (62))	22.48	1423	0.06				Monoterp. acid

Unknown (m/z = 79, 121 (78), 105 (77), 91 (66), 123 (51))	23.13	1430	0.03				Monoterp. acid
α -Humulene	23.39	1433	0.18	0.13	1579	11.93	Sesquiterpene
4,5-diepi-Aristolochene	24.69	1449	0.24	0.22	1588	12.25	Sesquiterpene
Dehydroaromadendrene?	25.10*	1454	2.79	1.62	1645	14.96	Sesquiterpene
Unknown (m/z = 189, 105 (80), 133 (77), 91 (76), 204 (51))	25.10*	1454	[2.79]	1.00	1597	12.56	Sesquiterpene
Liguloxide or agarofuran analog	25.89	1463	1.27	[1.40]	1603	12.79*	Sesquiterp. ether
β -Selinene	26.31	1468	2.62	2.29	1624	13.85	Sesquiterpene
α -Selinene	26.95	1476	2.09	2.88	1632	14.23*	Sesquiterpene
δ -Guaiene	27.55	1483	0.70	[2.88]	1632	14.23*	Sesquiterpene
Selina-3,7(11)-diene	30.41	1521	0.12	0.37	1678	16.65	Sesquiterpene
α -Cadinene	30.70	1525	0.17	0.17	1697	17.68	Sesquiterpene
α -Elemol	32.73	1553	1.56	1.63	1990	36.03*	Sesquiterp. alcohol
Guaiol	35.60	1594	12.32	12.58	2000	36.51	Sesquiterp. alcohol
Unknown (m/z = 161, 105 (52), 107 (47), 59 (44), 91 (43), 93 (42), 189 (41)... 222 (6))	35.69	1595	0.11	0.20	2035	37.80	Oxygenated sesquiterpene
10-epi- γ -Eudesmol	35.97*	1599	0.74	[1.63]	1990	36.03*	Sesquiterp. alcohol
Rosifoliol analog?	35.97*	1599	[0.74]	0.53	2014	37.15	Sesquiterp. alcohol
Unknown (m/z = 43, 81 (100), 135 (77), 204 (72), 67 (70), 71 (68), 189 (63), 207 (62), 95 (61)... 222 (5))	36.26	1607	0.28	0.27	2042	38.04	Oxygenated sesquiterp.
Eremoligenol	36.85	1621	0.61	0.85	2070	38.91	Sesquiterp. alcohol
γ -Eudesmol	37.13	1628	7.05	7.56	2064	38.70	Sesquiterp. alcohol
Hinesol	37.32	1633	0.34	22.37	2109	40.10*	Sesquiterp. alcohol
β -Eudesmol	38.11*	1652	11.49	[22.37]	2109	40.10*	Sesquiterp. alcohol
α -Eudesmol	38.11*	1652	[11.49]	0.75	2128	40.66*	Sesquiterp. alcohol
Selin-11-en-4- α -ol	38.17	1653	1.46	[0.75]	2128	40.66*	Sesquiterp. alcohol
Bulnesol	38.59	1664	10.69	[22.37]	2109	40.10*	Sesquiterp. alcohol
epi- β -Bisabolol	39.02	1674	0.42	0.69	2085	39.38	Sesquiterp. alcohol
β -Bisabolol	39.27	1680	0.17	0.33	2076	39.10	Sesquiterp. alcohol
α -Bisabolol	39.50	1686	0.19	0.50	2137	40.90*	Sesquiterp. alcohol
Chamazulene	40.62	1718	0.17	0.21	2227	43.22	Azulene
γ -Costol	41.45	1744	2.20	2.24	2386	46.75	Sesquiterp. alcohol
Unknown (m/z = 91, 105 (71), 79 (52), 77 (50), 93 (47), 143 (47)... 218 (9))	41.67	1751	0.61				Oxygenated sesquiterp.
Guaiazulene	42.19*	1767	1.64	0.17	2258	43.91	Azulene

β -Costol	42.19*	1767	[1.64]	3.18	2444	47.94*	Sesquiterp. alcohol
α -Costol	42.31	1771	1.80	[3.18]	2444	47.94*	Sesquiterp. alcohol
Unknown lactone (m/z = 233, 91 (76), 173 (66), 105 (54), 79 (47), 201 (46), 93 (44), 145 (44), 248 (41))	42.45	1775	0.27	[0.50]	2137	40.90*	Sesquiterp. lactone
Callitrin isomer	43.14	1797	0.44	2.30	2475	48.58*	Sesquiterp. lactone
Callitrin	43.83	1822	1.65	[2.30]	2475	48.58*	Sesquiterp. lactone
Callitrisin isomer I	44.71	1854	1.14	1.20	2492	48.91	Sesquiterp. lactone
Unknown (m/z = 159, 131 (22), 91 (20), 119 (18), 105 (17), 232 (15))	45.60	1887	0.44	0.32	2513	49.33	Sesquiterp. lactone
Dihydrocolumellarin	46.02	1902	10.17	10.17	2532	49.71	Sesquiterp. lactone
Unknown (m/z = 219, 107 (33), 91 (29), 145 (24), 93 (23), 105 (22), 234 (20))	46.15	1908	0.30				Sesquiterp. lactone
Columellarin isomer?	46.90	1938	1.68	3.22	2633	51.62*	Sesquiterp. lactone
Callitrisin isomer II	47.06	1944	0.51	0.68	2681	52.49	Sesquiterp. lactone
Columellarin	47.13	1947	0.98	[3.22]	2633	51.62*	Sesquiterp. lactone
Callitrisin	47.18	1949	0.77	0.93	2707	52.98	Sesquiterp. lactone
Dihydrocallitrisin	47.24	1951	0.27				Sesquiterp. lactone
Total identified			89.45%	89.63%			

*: 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

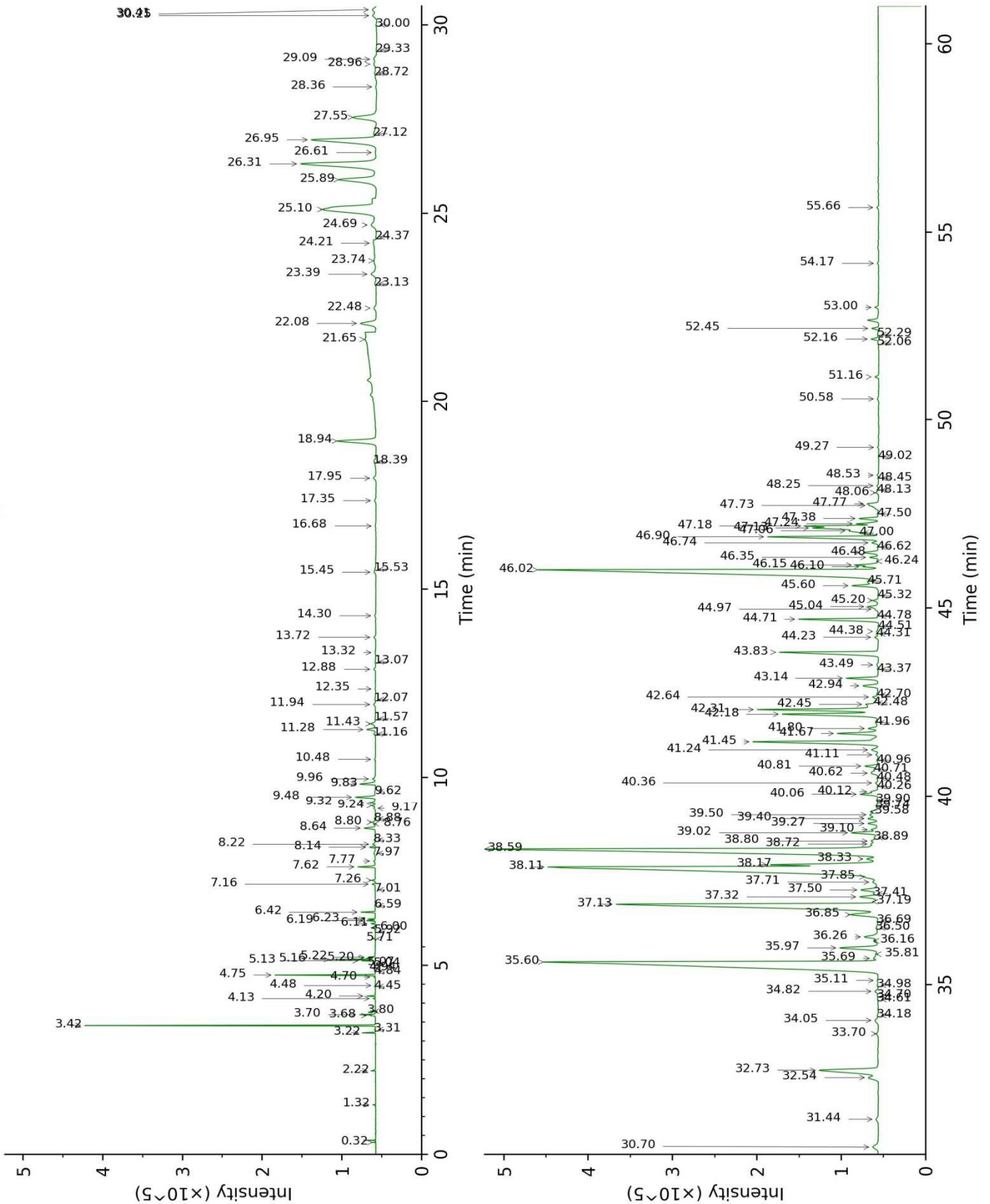
Physical aspect : Blue viscous liquid

Refractive index : 1.5070 \pm 0.0003 (20 °C)

CONCLUSION

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

17K14-PTH2-1-CC_BP5



17K14-PTH2-1-CC_WAX

