PLANT THERAPY
100% PURE ESSENTIAL OILS

GC/MS BATCH NUMBER: C50102

ESSENTIAL OIL: CEDARWOOD HIMALAYAN
BOTANICAL NAME: CEDRUS DEODORA
ORIGIN: INDIA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF CEDARWOOD HIMALAYAN OIL	%
β-HIMACHALENE	38.4
α-HIMACHALENE	14.0
(E)-α-ATLANTONE	8.9
γ-HIMACHALENE	8.8
(E)-γ-ATLANTONE	3.8
(Z)-γ-ATLANTONE	3.5
(Z)-α-ATLANTONE	2.1
11-αH-HIMACHALA-1,4-DIENE 2	1.8
VESTITENONE	1.5
ALLOHIMACHALOL	1.1

Comments from Robert Tisserand: Characteristic "orange wood" odor quality, with constituents in expected amounts.

Date : February 16, 2017

SAMPLE IDENTIFICATION

Internal code : 17A30-PTH17-1-DM
Customer identification : Cedarwood Himalayan - India - C5010267R
Type : Essential oil
Source : *Cedrus deodora*
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 : 2017-02-14

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.	
Mesityl oxide	1.72	807	0.03	0.03	1068	2.16	Aliphatic ketone
α-Pinene	3.40	928	0.02	0.02	952	1.22	Monoterpene
Limonene	5.12	1028	0.01	0.01	1142	3.00	Monoterpene
Terpinolene	6.14	1084	tr	tr	1225	4.15	Monoterpene
para-Cymenene	6.32	1093	0.01	0.01	1368	6.38	Monoterpene
Limona ketone	7.30	1131	0.78	0.76	1469	8.64	Simple phenolic
para-Methylacetophenone	8.96	1192	0.09	0.15	1664	16.72	Simple phenolic
α-Longipinene	15.63	1330	0.09	0.09	1402	6.98	Sesquiterpene
α-Ylangene	17.02	1351	0.04	0.03	1419	7.40	Sesquiterpene
α-Copaene	17.46	1357	0.01	0.01	1426	7.57	Sesquiterpene
β-Elemene	18.46	1373	0.14	0.10	1513	9.93	Sesquiterpene
Longifolene	19.37	1386	0.61	0.51	1485	9.01	Sesquiterpene
Vestitenone isomer	20.67	1405	0.24				Terpenic ketone
Himachala-2,4-diene	20.84	1407	0.45	0.54	1524	10.34	Sesquiterpene
Unknown (m/z = 105, 93 (81), 43 (70), 120 (67), 91 (60), 145 (56), 107 (45)... 204 (0))	21.57	1416	0.21				Sesquiterpene
trans-α-Bergamotene	21.99*	1421	0.27	0.18	1539	10.93	Sesquiterpene
Himachala-2,4-diene isomer	21.99*	1421	[0.27]				Sesquiterpene
α-Himachalene	22.68	1429	13.96	14.05	1554	11.49	Sesquiterpene
Vestitenone	23.37	1437	1.51				Terpenic ketone
trans-β-Farnesene	23.62	1440	0.13	0.24	1633	15.05	Sesquiterpene
Unknown (m/z = 131, 105 (87), 119 (86), 91 (83), 159 (63), 187 (61), 202 (59))	24.33	1449	1.04	0.99	1631	14.92	Sesquiterpene
γ-Himachalene	25.07	1458	8.77	10.47	1604	13.51*	Sesquiterpene
11-αH-Himachala-1,4-diene	25.37	1461	1.81	[10.47]	1604	13.51*	Sesquiterpene
β-Himachalene	27.32	1485	38.36	38.84	1627	14.71	Sesquiterpene
δ-Amorphene	27.53	1487	0.18	0.19	1642	15.52	Sesquiterpene
α-Dehydro-ar-himachalene	28.13	1495	0.33	0.29	1750	22.07	Sesquiterpene
Unknown (m/z = 131, 91 (25), 202 (20), 115 (18), 159(16), 129 (16))	29.21*	1509	0.80	0.36	1778	23.93	Sesquiterpene
γ-Dehydro-ar-himachalene	29.21*	1509	[0.80]	1.44	1809	26.07	Sesquiterpene
ar-Himachalene?	30.00	1520	0.24				Sesquiterpene
α-Calacorene	30.74	1530	0.13	0.14	1798	25.24	Sesquiterpene
trans-α-Bisabolene	31.53	1541	0.81	0.81	1702	18.77	Sesquiterpene
Cadala-1(10),3,8-triene	32.51	1555	0.09				Sesquiterpene
Himachalene oxide	33.08	1563	0.16	0.14	1851	29.19	Sesquiterp. ether

(*E*)-Nerolidol	33.29	1565	0.11	0.12	1980	36.39	Sesquiterp. alcohol
Longiborneol	34.52	1583	0.32	0.45	2024	38.05	Sesquiterp. alcohol
β-Himachalene oxide	35.32	1594	0.32	0.25	1878	31.19	Sesquiterp. ether
Unknown (m/z = 138, 110 (77), 137 (72), 41 (71)... 220 (29))	35.50	1596	0.45				Oxygenated sesquiterpene
Himachalol	37.25	1636	0.82	4.12	2085	39.96*	Sesquiterp. alcohol
Allohimachalol	37.83	1651	1.07	0.96	2121	41.00	Sesquiterp. alcohol
(*E*)-10,11-Dihydroatlantone	38.45*	1666	1.39	0.65	2042	38.63	Sesquiterp. ketone
β-Atlantone	38.45*	1666	[1.39]	0.58	2058	39.14	Sesquiterp. ketone
(*Z*)-γ-Atlantone	39.18	1684	3.53	[4.12]	2085	39.96*	Sesquiterp. ketone
Deodarone	39.32	1687	0.57	0.52	2095	40.29	Sesquiterp. ketone
Deodarone analog?	39.40	1689	0.50	0.51	2101	40.46	Sesquiterp. ketone
(*E*)-γ-Atlantone	39.67	1696	3.79	3.76	2107	40.62	Sesquiterp. ketone
(*Z*)-α-Atlantone	40.32	1715	2.08	1.99	2137	41.42	Sesquiterp. ketone
(*E*)-α-Atlantone	42.21	1774	8.90	9.03	2207	43.23	Sesquiterp. ketone
Nootkatone	42.69	1789	0.11	0.12	2355	46.60	Sesquiterp. ketone
Total identified			**92.78%**	**92.11%**			

*: 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 : Yellow liquid

Refractive index : 1.5133 ± 0.0003 (20 °C)

Conclusion

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

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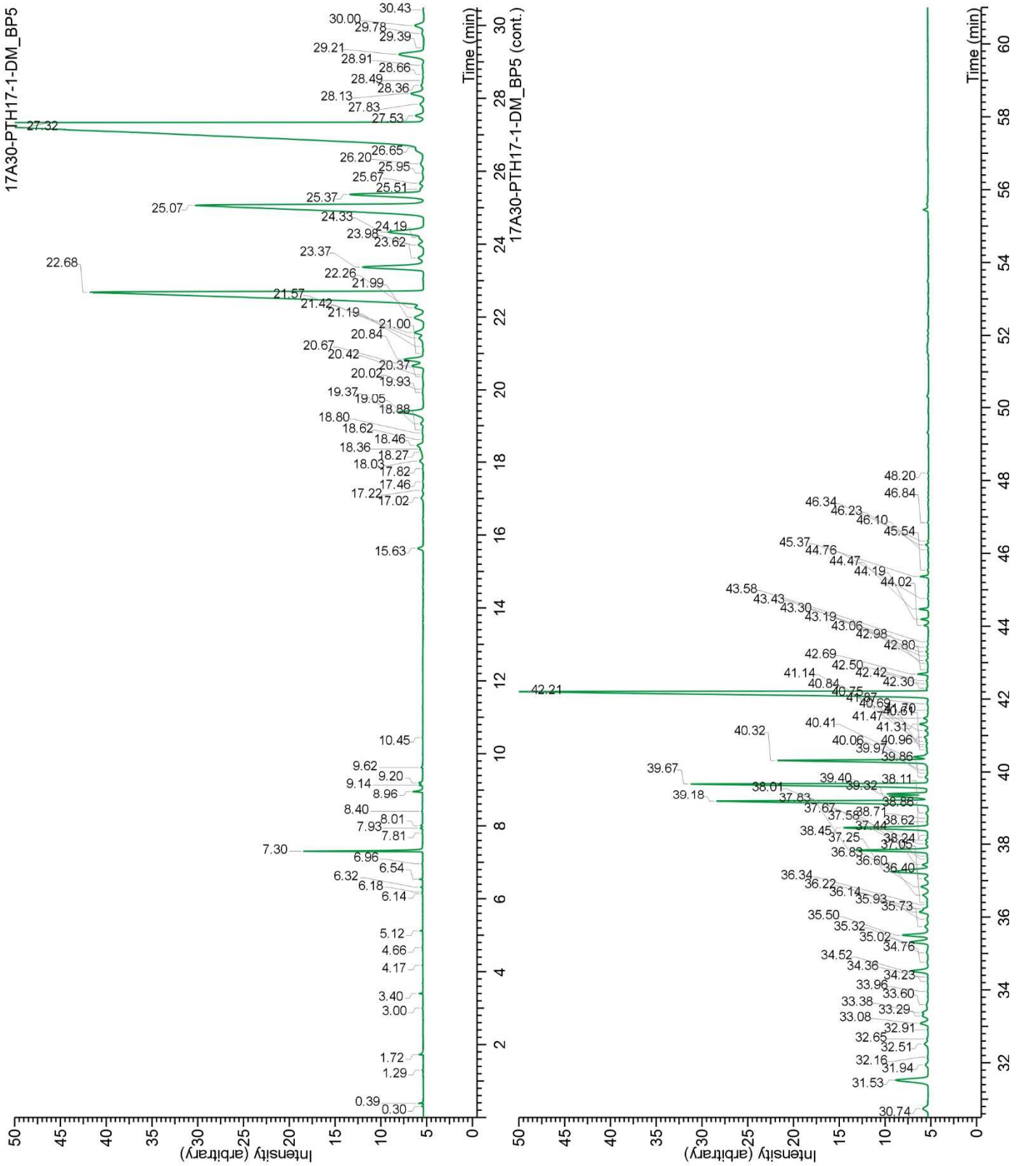
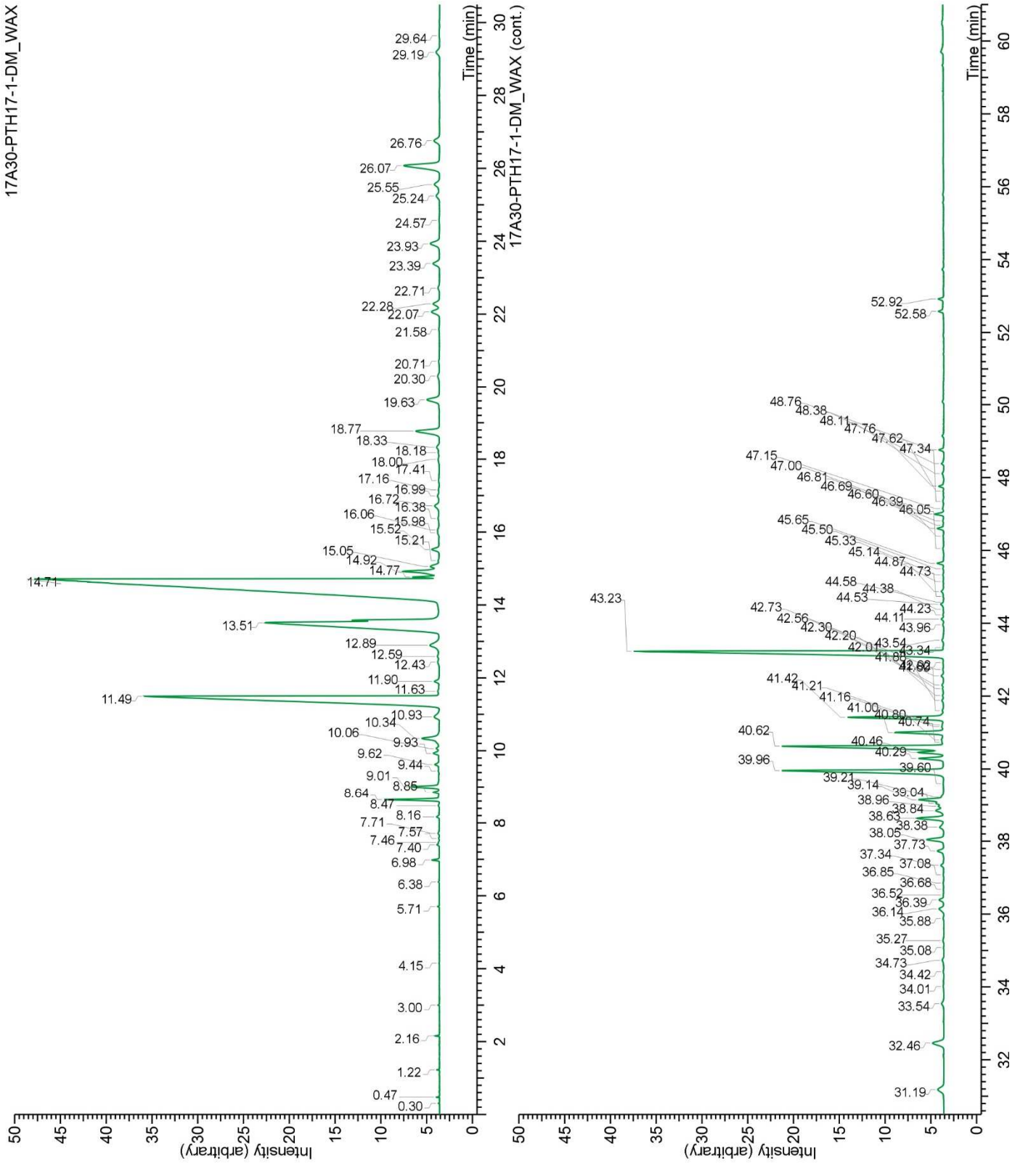

17A30-PTH17-1-DM_BP5
Time (min)
Intensity (arbitrary)
17A30-PTH17-1-DM_BP5 (cont.)
Time (min)
Intensity (arbitrary)



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