

Date : March 30, 2017

SAMPLE IDENTIFICATION

Internal code : 17C27-GUR6-1-DM

Customer identification : Cedarwood - K-8941

Type : Essential oil

Source : *Cedrus deodara*

Customer : HealthLand LLC.

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 : 2017-03-28

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.	
Toluene	1.30	757	tr				Simple phenolic
Mesityl oxide	1.67	803	0.09	0.09	1061	2.03	Aliphatic ketone
α -Pinene	3.41	928	0.03	0.03	943	1.16	Monoterpene
β -Pinene	4.19	974	tr	0.01	1038	1.80	Monoterpene
Limonene	5.14	1029	0.02	0.02	1139	2.86	Monoterpene
Terpinolene	6.16	1085	tr	0.01	1222	3.98	Monoterpene
para-Cymenene	6.35	1095	0.02	0.02	1365	6.17	Monoterpene
Limona ketone	7.34	1133	1.08	1.07	1466	8.26	Simple phenolic
para-Methylacetophenone	9.01	1194	0.12	0.16	1665	15.89*	Simple phenolic
α -Terpineol	9.28	1202	0.03	0.41	1630	14.07	Monoterp. alcohol
α -Longipinene	15.71	1331	0.07	0.08	1403	6.77	Sesquiterpene
α -Ylangene	17.09	1352	0.03	0.03	1420	7.17	Sesquiterpene
α -Copaene	17.55	1359	0.01	0.01	1432	7.45	Sesquiterpene
β -Elemene	18.54	1374	0.32	0.47	1525	9.92*	Sesquiterpene
Longifolene	19.47	1388	0.51	0.46	1483	8.66	Sesquiterpene
Himachala-2,4-diene	20.79	1406	0.24	[0.47]	1525	9.92*	Sesquiterpene
Vestitenone isomer	20.94	1408	0.34				Terpenic ketone
Unknown (m/z = 105, 93 (59), 43 (52), 120 (49), 91 (49), 145 (43)... 204 (2))	21.50	1415	0.13				Sesquiterpene
Himachala-2,4-diene isomer	21.70	1417	0.16				Sesquiterpene
Unknown (m/z = 105, 93 (81), 43 (70), 120 (67), 91 (60), 145 (56), 107 (45)... 204 (0))	22.07	1422	0.25				Sesquiterpene
α -Himachalene	22.75	1430	11.27	11.46	1554	10.98	Sesquiterpene
Vestitenone	23.51	1439	1.35				Terpenic ketone
<i>trans</i> - β -Farnesene	23.73	1442	0.14	30.34	1629	14.02*	Sesquiterpene
Unknown (m/z = 131, 105 (87), 119 (86), 91 (83), 159 (63), 187 (61), 202 (59))	24.44	1450	1.00	[30.34]	1629	14.02*	Sesquiterpene
γ -Himachalene	25.15	1459	7.02	7.26	1606	12.92	Sesquiterpene
11- α H-Himachala-1,4-diene	25.48	1463	1.42	1.11	1608	12.98	Sesquiterpene
β -Himachalene	27.37	1485	30.01	[30.34]	1629	14.02*	Sesquiterpene
<i>cis</i> - α -Bisabolene	27.62	1488	0.13	[0.16]	1665	15.89*	Sesquiterpene
α -Dehydro-ar-himachalene	28.27	1496	0.46	0.42	1753	21.09	Sesquiterpene
γ -Dehydro-ar-himachalene	29.38	1511	1.02	1.31	1811	24.95	Sesquiterpene
Unknown (m/z = 187, 145 (91), 131 (64), 202 (42))	30.17	1522	0.26				Sesquiterpene
α -Calacorene	30.93	1533	0.11	0.11	1800	24.21	Sesquiterpene

<i>trans</i> - α -Bisabolene	31.65	1543	0.95	0.95	1705	18.00	Sesquiterpene
Himachalene oxide	33.20	1564	0.27	0.23	1854	28.00	Sesquiterp. ether
Longiborneol	34.74	1586	0.39	0.59	2025	37.40	Sesquiterp. alcohol
β -Himachalene oxide	35.43	1595	0.41	0.33	1881	30.01	Sesquiterp. ether
Unknown (m/z = 138, 110 (77), 137 (72), 41 (71)... 220 (29))	35.62	1598	0.73				Oxygenated sesquiterp.
Himachalol	37.41	1640	1.25	1.22	2101	39.75	Sesquiterp. alcohol
Allohimachalol	37.97	1654	1.41	1.20	2123	40.45	Sesquiterp. alcohol
(<i>E</i>)-10,11-Dihydroatlantone	38.56*	1668	2.01	0.99	2046	38.04	Sesquiterp. ketone
β -Atlantone	38.56*	1668	[2.01]	0.97	2062	38.56	Sesquiterp. ketone
(<i>Z</i>)- γ -Atlantone	39.29	1686	4.72	5.70	2090	39.41*	Sesquiterp. ketone
Deodarone	39.45	1690	1.37	1.30	2106	39.93	Sesquiterp. ketone
Deodarone analog?	39.53	1692	1.11	[5.70]	2090	39.41*	Sesquiterp. ketone
(<i>E</i>)- γ -Atlantone	39.78	1698	5.16	5.12	2111	40.10	Sesquiterp. ketone
(<i>Z</i>)- α -Atlantone	40.44	1719	2.77	2.78	2141	40.92	Sesquiterp. ketone
(<i>E</i>)- α -Atlantone	42.35	1779	13.29	13.67	2213	42.77	Sesquiterp. ketone
Nootkatone	42.81	1793	0.54	0.52	2359	46.10	Sesquiterp. ketone
Total identified			91.65%	90.45%			

*: 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 : 1.5135 \pm 0.0003 (20 °C)

CONCLUSION

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



