

GC/MS BATCH NUMBER: AH0102

ESSENTIAL OIL: AMYRIS
BOTANICAL NAME: AMYRIS BALSAMIFERA
ORIGIN: HAITI

KEY CONSTITUENTS PRESENT IN THIS BATCH OF AMYRIS OIL	%
VALERIANOL + β -EUDESMOL	23.3
7-EPI-A-EUDESMOL	14.6
α -ELEMOL	8.31
γ -EUDESMOL	6.6
10-EPI- γ -EUDESMOL	5.7
β -SESQUIPELLANDRENE	3.9
α -COPAENE	2.9
α -CURCUMENE	2.3
DRIMENOL	2.2
α -ZINGIBERENE	1.9
AMORPHA-4,11-DIENE	1.8
SELINA-3,7(11)-DIENE	1.2
β -CARYOPHYLLENE	1.1
(2Z,6E)-FARNESOL	1.0

Comments from Robert Tisserand: Beautiful "precious wood" odor quality. All seven key ISO constituents are within range.

Date : July 3, 2017

SAMPLE IDENTIFICATION

Internal code : 17F29-PTH3-1-DM

Customer identification : Amyris - Haiti - AH010272R

Type : Essential oil

Source : *Amyris balsamifera*

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 : 2017-07-03

Checked and approved by :

Sylvain Mercier, M. Sc., chimiste 2014-005

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IDENTIFIED COMPOUNDS

Identification	Column: BP5			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
α-Cubebene	16.03	1336	0.06	0.06	1411	6.47	Sesquiterpene
α-Copaene	17.82	1363	2.87	2.87	1441	6.98	Sesquiterpene
β-Cubebene	18.74	1377	0.16	0.17	1478	7.85	Sesquiterpene
β-Elemene	18.98	1380	0.11	1.27	1524	8.93*	Sesquiterpene
α-Cedrene	19.58	1390	0.06	0.06	1498	8.32	Sesquiterpene
β-Caryophyllene	20.67	1405	1.14	[1.27]	1524	8.93*	Sesquiterpene
Thujopsen	22.00	1421	0.03	0.02	1546	9.57	Sesquiterpene
(Z)-epi-β-Santalene	22.97	1433	0.05	0.04	1571	10.48	Sesquiterpene
Amorpha-4,11-diene analog	23.45*	1438	0.90	0.53	1579	10.79	Sesquiterpene
α-Humulene	23.45*	1438	[0.90]	1.95	1585	10.98*	Sesquiterpene
Amorpha-4,11-diene	23.99	1445	1.81	[1.95]	1585	10.98*	Sesquiterpene
β-Chamigrene	24.57	1452	0.17	0.17	1619	12.23	Sesquiterpene
Amorpha-4,7(11)-diene	25.20	1459	0.18				Sesquiterpene
Unknown (m/z = 189, 95 (81), 133 (66), 91 (66), 105 (60), 204 (47))	25.62	1464	0.43				Sesquiterpene
γ-Curcumene	26.14	1471	0.72	1.82	1628	12.53	Sesquiterpene
ar-Curcumene	26.72	1478	2.33	5.58	1701	16.06*	Sesquiterpene
4-epi-cis- Dihydroagarofuran	26.97	1481	0.20				Sesquiterp. ether
β-Dihydroagarofuran	27.35	1485	0.76				Sesquiterp. ether
α-Zingiberene	27.98*	1493	2.72	1.88	1660	13.98	Sesquiterpene
7-epi-α-Selinene	27.98*	1493	[2.72]	1.19	1666	14.24*	Sesquiterpene
β-Bisabolene	28.81	1503	0.50	[1.19]	1666	14.24*	Sesquiterpene
δ-Cadinene	29.22	1509	0.52	0.50	1679	14.93	Sesquiterpene
β-Sesquiphellandrene	30.43	1526	3.94	[5.58]	1701	16.06*	Sesquiterpene
Selina-3,7(11)-diene	30.86	1532	1.16	1.29	1687	15.34	Sesquiterpene
Liguloxide	31.29	1538	0.48				
α-Elemol	32.87	1560	8.31	8.25	2005	34.78*	Sesquiterp. alcohol
(E)-Nerolidol	33.92	1574	0.64	0.65	1995	34.36	Sesquiterp. alcohol
α-Cedrol	35.43	1595	0.25	[8.25]	2005	34.78*	Sesquiterp. alcohol
Guaiol	35.68	1599	0.44	0.48	2009	34.94	Sesquiterp. alcohol
10-epi-γ-Eudesmol	36.25	1612	5.67	5.46	1987	33.97	Sesquiterp. alcohol
Unknown (m/z = 161, 59 (62), 204 (53), 81 (42), 189 (40), 79 (39), 93 (36), 91 (34)...))	36.67	1622	1.64				Oxygenated sesquiterp.
γ-Eudesmol	37.11	1633	6.56	7.04	2072	37.55	Sesquiterp. alcohol
τ-Cadinol	37.30	1638	0.21	0.26	2078	37.77	Sesquiterp. alcohol
τ-Muurolol	37.46	1642	0.27	0.27	2089	38.06	Sesquiterp. alcohol

α -Cadinol	37.58*	1644	0.98	0.34	2128	39.29	Sesquiterp. alcohol
Hinesol	37.58*	1644	[0.98]	15.77	2125	39.21*	Sesquiterp. alcohol
Valerianol	38.23*	1660	32.18	23.34	2120	39.03*	Sesquiterp. alcohol
7-epi- α -Eudesmol	38.23*	1660	[32.18]	[15.77]	2125	39.21*	Sesquiterp. alcohol
β -Eudesmol	38.23*	1660	[32.18]	[23.34]	2120	39.03*	Sesquiterp. alcohol
Unknown (m/z = 159, 145 (82), 202 (73), 91 (53), 131 (52))	38.80	1674	0.14				Sesquiterpene
Unknown (m/z = 109, 69 (73), 41 (71), 81 (69), 95 (47), 93 (35)... 222 (1))	38.97	1678	0.54				Oxygenated sesquiterpene
Caryophyllenyl acetate	39.25	1685	0.98				Sesquiterp. ester
(2Z,6E)-Farnesol	39.88	1701	1.01	0.85	2270	43.07	Sesquiterp. alcohol
(2E,6E)-Farnesol	40.72	1727	0.40	0.39	2292	43.56	Sesquiterp. alcohol
(6R,7R)-Bisabolone	41.19	1742	0.69				Sesquiterp. ketone
(6S,7R)-Bisabolone	41.44	1750	0.78	0.83	2188	40.99	Sesquiterp. ketone
Drimenol	41.98	1767	2.15	2.23	2360	45.09	Sesquiterp. alcohol
Total identified			82.39%	85.56%			

*: 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

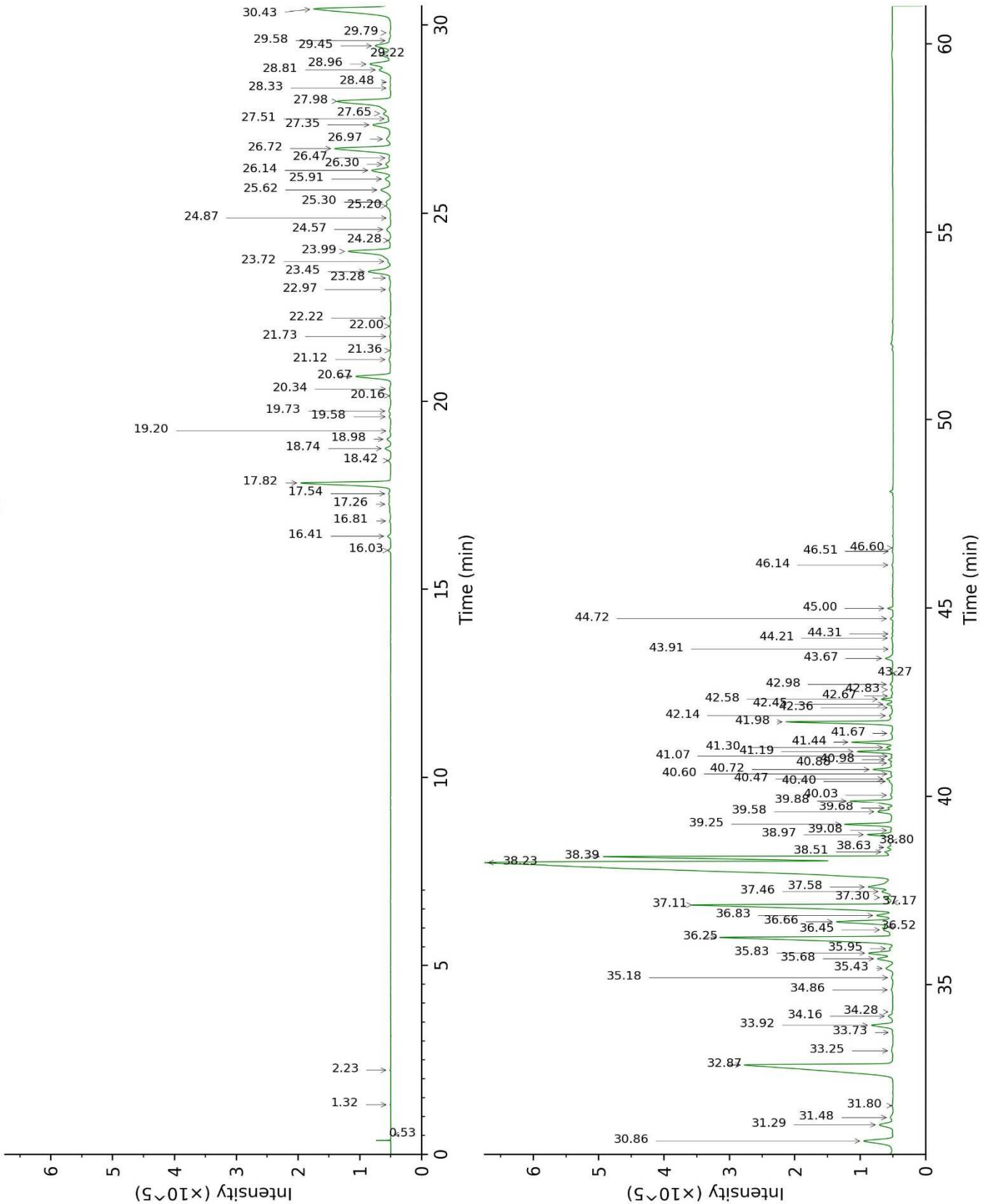
Physical aspect : Light yellow liquid

Refractive index : 1.5040 \pm 0.0003 (20 °C)

CONCLUSION

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

17F29-PTH3-1-DM_BP5



17F29-PTH3-1-DM_WAX

