



**PLANT THERAPY**  
100% PURE ESSENTIAL OILS

## GC/MS BATCH NUMBER: V80101

---

**ESSENTIAL OIL:** VETIVER ORGANIC  
**BOTANICAL NAME:** VETIVERIA ZIZANOIDES  
**ORIGIN:** INDIA

KEY CONSTITUENTS PRESENT IN THIS BATCH OF VETIVER ORGANIC OIL	%
KHUSIMOL	17.8
ISOVALENCENOL	6.9
$\beta$ -VETIVENENE	3.9
$\alpha$ -VETIVONE	3.7
ZIZANOIC ACID	3.5
ZIZANOL	3.1
VETISELINENOL	3.0
KHUSIOL	1.6
(E)-ISOVALENCENAL	1.6
CYCLOCOPACAMPHAN-12-ol (epimer A)	1.5
ISOVALENCENOL ISOMER	1.4
$\beta$ -VETIVONE	1.3
CYCLOCOPACAMPHAN-12-ol (epimer B)	1.3
(Z)-ISOVALENCENAL	1.2
$\beta$ -VETISPIRENE	1.1

Comments from Robert Tisserand: Long-lasting, rich, sweet, leathery-smokey odor quality. Constituents are in expected amounts.

**Date :** August 7, 2017

*SAMPLE IDENTIFICATION*

**Internal code :** 17H07-PTH6-1-DM

**Customer identification :** Vetiver Organic - India - V8010175R

**Type :** Essential oil

**Source :** *Vetiveria zizanoides*

**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 :** Alexis St-Gelais, M. Sc., chimiste

**Analysis date :** 2017-08-07

Checked and approved by :

---

Alexis St-Gelais, M. Sc., chimiste 2013-174

*Note: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.*

*This report is digitally signed, it is only considered valid if the digital signature is intact.*

IDENTIFIED COMPOUNDS

Identification	Column: BP5			Column: WAX			Molecular Class
	R.T.	R.I.	%	%	R.I.	R.T.	
$\alpha$ -Ylangene	17.14	1349	0.11	0.09	1424	7.46	Sesquiterpene
12-Norisoziza-5-ene	17.22	1350	0.10	0.07	1453	8.18	Norsesquiterpene
6-epi-Nigritene	18.20	1365	0.13	0.15	1488	9.02*	Norsesquiterpene
Nigritene	18.77	1373	0.44	0.23	1501	9.40	Norsesquiterpene
Acora-3,7(14)-diene	20.15	1394	0.21				Sesquiterpene
$\beta$ -Funebrene?	20.74	1402	0.12	0.11	1498	9.32	Sesquiterpene
Aristolene	21.07	1406	0.14	[0.15]	1488	9.02*	Sesquiterpene
6,9-Guaiadiene	22.60	1424	0.99	0.97	1537	10.74	Sesquiterpene
Prezizaene	22.80	1426	0.54	0.63	1622	14.30	Sesquiterpene
Khusimene	23.13	1430	0.85	0.62	1636	15.06	Sesquiterpene
Unknown (m/z = 105, 161 (72), 93 (69), 91 (65), 133 (63), 204 (43))	23.93	1440	0.16				Sesquiterpene
$\alpha$ -Amorphene	26.22	1467	0.49	0.35	1615	13.95	Sesquiterpene
$\beta$ -Vetispirene	26.32*	1468	2.15	1.14	1648	15.69	Sesquiterpene
$\alpha$ -Vetispirene	26.32*	1468	[2.15]	0.47	1625	14.45	Sesquiterpene
<i>cis</i> -Eudesma-6,11-diene?	26.32*	1468	[2.15]				Sesquiterpene
$\gamma$ -Amorphene	27.56	1483	0.23	0.18	1677	17.24	Sesquiterpene
Eudesma-2,4(15),11-triene	27.80	1486	0.73	0.40	1640	15.28	Sesquiterpene
$\delta$ -Amorphene	28.63	1496	0.50	0.49	1646	15.57	Sesquiterpene
$\gamma$ -Vetivenene	30.17	1517	0.31	0.40	1723	20.02	Sesquiterpene
$\alpha$ -Calacorene	31.35*	1534	0.37	0.36	1806	25.59	Sesquiterpene
6S,10R-Dimethylbicyclo[4.4.0]decan-1-en-3-one	31.35*	1534	[0.37]				Terpenic ketone
$\beta$ -Vetivenene	31.82	1540	3.86	3.64	1743	21.36	Sesquiterpene
$\alpha$ -Elemol	32.51	1550	0.17	0.21	1991	36.77	Sesquiterp. alcohol
<i>cis</i> -Eudesmen-6-ol?	33.12	1559	1.27				Sesquiterp. alcohol
Unknown (m/z = 59, 205 (63), 43 (59), 91 (54), 220 (44))	33.67	1566	0.85				Oxygenated sesquiterp.
Unknown (m/z = 202, 187 (94), 91 (78), 105 (52), 131 (50))	33.76	1568	0.32				Sesquiterpene
Khusimone	34.72	1581	0.23	0.25	2097	40.23	Norsesquiterp. ketone
Unknown (m/z = 187, 202 (69), 145 (28), 131 (23), 91 (20), 105 (20))	35.98	1600	0.78				Sesquiterpene
Unknown (m/z = 81, 161 (59), 43 (56), 105 (39), 41 (35)... 207 (26), 204 (21)...	36.53	1613	0.81				Oxygenated sesquiterp.
Selin-6-en-4 $\alpha$ -ol?	36.75	1618	0.67	0.68	2046	38.64	Sesquiterp. alcohol

1-epi-Cubenol	37.04	1626	0.98	1.11	1957	35.22	Sesquiterp. alcohol
Unknown (m/z = 95, 121 (84), 161 (77), 43 (63), 79 (61), 91 (61), 105 (54), 93 (54), 204 (47)... 220 (8))	37.99	1649	2.24				Oxygenated sesquiterp.
Cyclocopacamphan-12-ol (epimer A)	38.21	1654	1.54				Sesquiterp. alcohol
Cyclocopacamphan-12-ol (epimer B)	38.32	1657	1.25				Sesquiterp. alcohol
Zizanol	38.86	1670	3.14				Sesquiterp. alcohol
Khusiol	39.20	1679	1.56				Sesquiterp. alcohol
Zizanal	39.61	1689	0.99				Sesquiterp. aldehyde
Selin-7(11)-en-4 $\alpha$ -ol	39.65	1690	0.98	0.88	2187	42.64	Sesquiterp. alcohol
Unknown (m/z = 187, 159 (98), 91 (79), 131 (73), 105 (73), 133 (54)... 202 (29), 220 (14))	40.06	1700	0.91				Oxygenated sesquiterp.
Unknown (m/z = 189, 204 (88), 43 (76), 161 (75), 91 (61), 105 (58)... 220 (9))	40.14	1703	1.29				Oxygenated sesquiterp.
Vetiselinol	40.54	1715	3.04	4.12	2293	45.14	Sesquiterp. alcohol
Khusimol	41.42	1743	17.76	15.29	2370	46.81	Sesquiterp. alcohol
Isovalencenol	42.59	1780	6.92	6.96	2409	47.65	Sesquiterp. alcohol
Isovalencenol isomer	42.82	1787	1.40	1.75	2431	48.06	Sesquiterp. alcohol
(E)-Isovalencenal	43.12	1797	1.56				Sesquiterp. aldehyde
$\beta$ -Vetivone	43.33	1804	1.28	1.36	2347	46.31	Sesquiterp. ketone
(Z)-Isovalencenal	43.58	1813	1.19				Sesquiterp. aldehyde
$\alpha$ -Vetivone	43.99	1828	3.66	2.38	2363	46.65	Sesquiterp. ketone
Zizanoic acid	44.29	1839	3.54	5.75	2883	56.45	Sesquiterp. acid
<b>Total identified</b>			<b>65.4%</b>	<b>51.04%</b>			

\*: 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

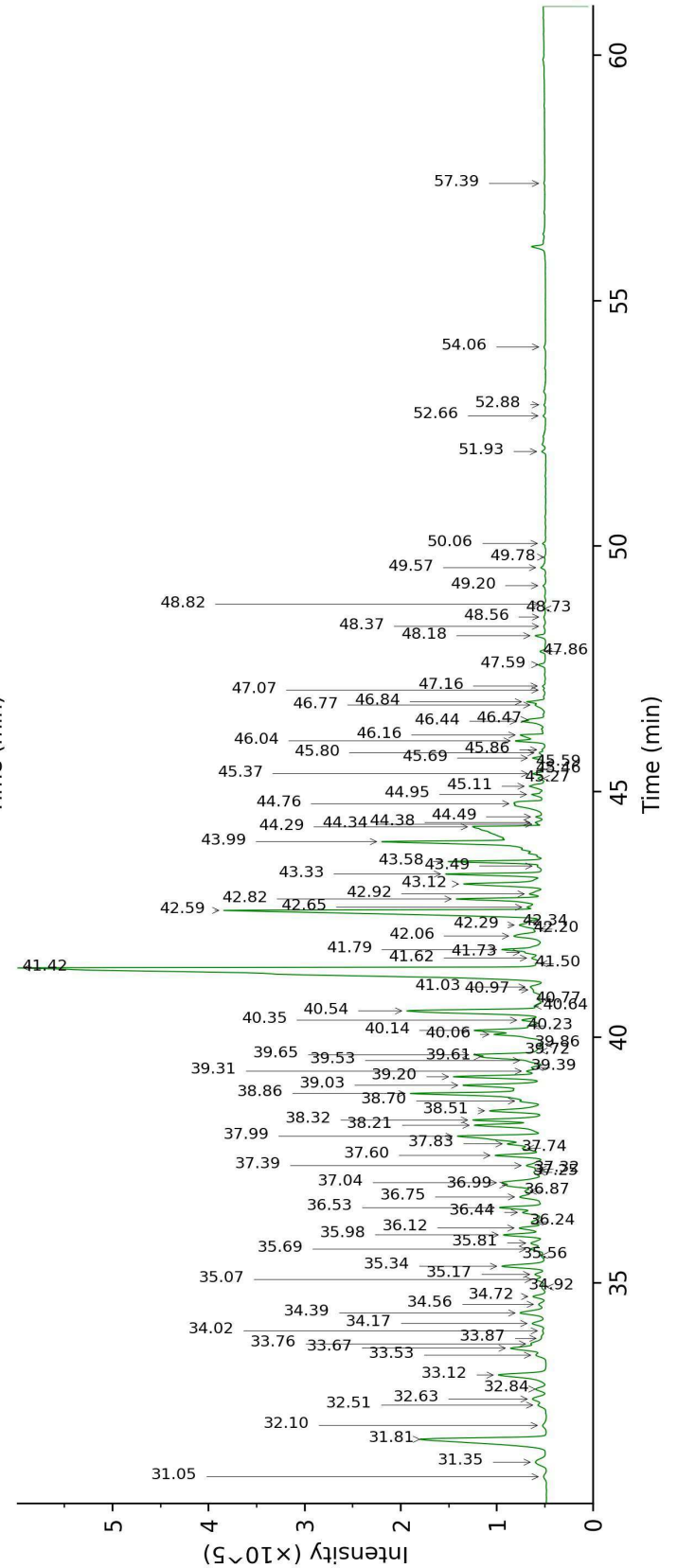
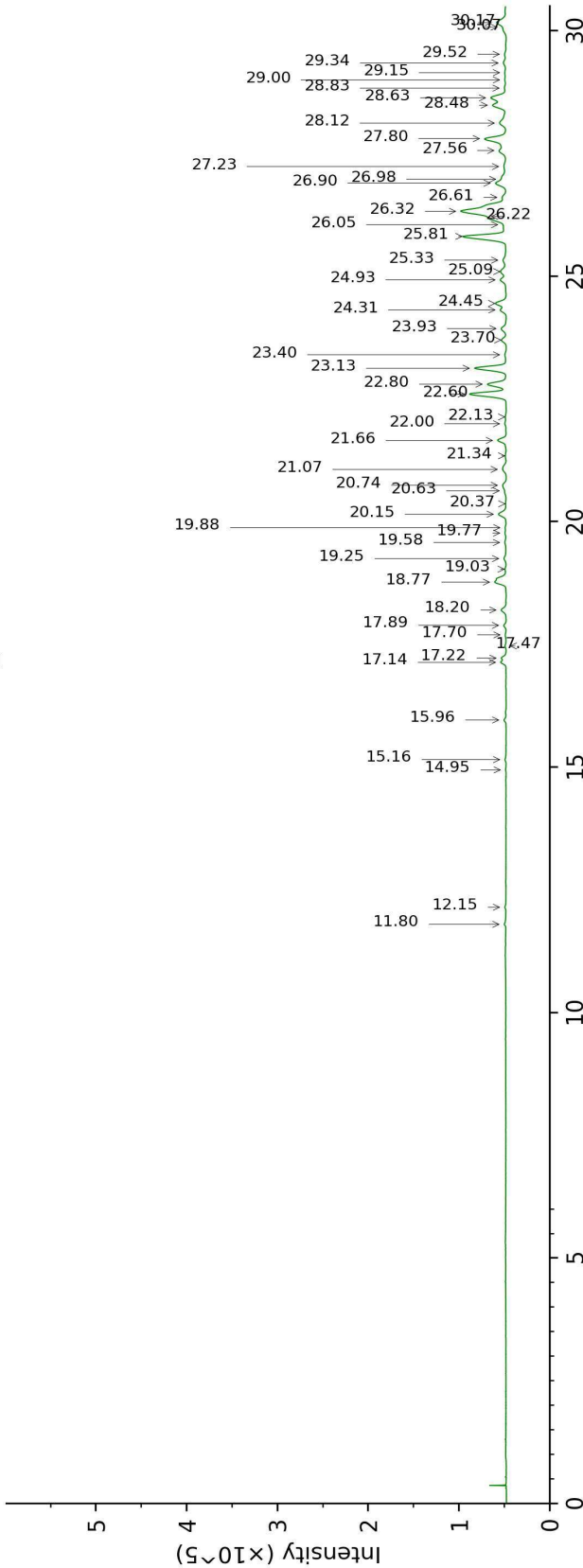
**Physical aspect :** Brownish yellow liquid

**Refractive index :** 1.5238  $\pm$  0.0003 (20 °C)

#### CONCLUSION

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

17H07-PTH6-1-DM\_BP5



17H07-PTH6-1-DM\_WAX

