

## GC/MS BATCH NUMBER: T10101

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**ESSENTIAL OIL:** TANGERINE  
**BOTANICAL NAME:** CITRUS TANGERINA  
**ORIGIN:** BRAZIL

KEY CONSTITUENTS PRESENT IN THIS BATCH OF TANGERINE OIL	%
LIMONENE	92.3
β-MYRCENE	1.8
γ-TERPINENE	1.5
α-PINENE	0.8
LINALOOL	0.4
OCTANAL	0.2
DECANAL	0.1

Comments from Robert Tisserand: A delightful, fresh and complex Tangerine oil with constituents in expected amounts for a genuine oil.

**CUSTOMER :**

**PLANT THERAPY  
126 Locust Street South  
Twin Falls, ID 83 301  
USA**

**Sample nature:** ESSENTIAL OIL  
**Botanical species:** CITRUS TANGERINA  
**Reference name:** TANGERINE  
**Batch number:** T10101  
**Origin:** BRAZIL  
**Part:** FRUIT  
**Pyrenessences reference:** E008  
**Date of reception:** 06/15/2015  
**Date analysis:** 06/27/2015  
**Packaging:** Amber flask of 5 ml – ambient temperature  
**Analysis:** GC Classic

**Validated report by :**

**Daniel DANTIN**



**GAS CHROMATOGRAPHY** norm NF ISO 11024

**Analysis conditions :**

CPG 6890 / MS 5973 AGILENT – Column : VF WAX polar 60 m × 0,25 mm × 0,5 µm

CPG 6890 FID AGILENT - Column : VF WAX polar 60 m × 0,25 mm × 0,5 µm

Temperature program : 6 min à 60°C – 2°C/min → 250°C – 10 min 250 °C

Carrier gas He : 23 psis/MS – 30 psis/FID

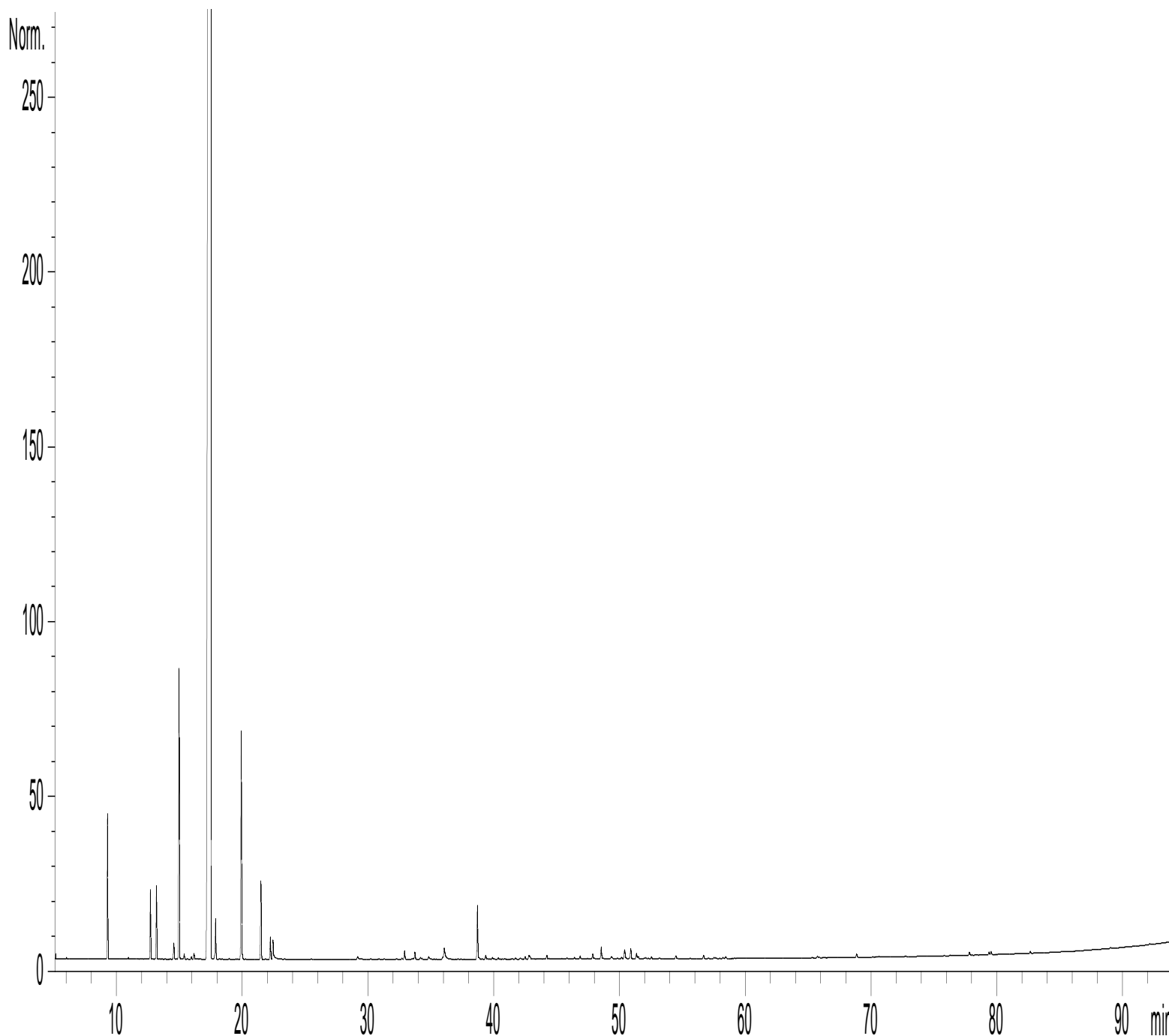
Sample injection / split : 1 µl of 10% solution in hexane,

Mass range : 30 to 350, Oil components are identified by a combination of retention times (our own database) and mass spectra library NKS 75 000 records,

Percentages are calculated from GC/FID peaks areas without using corrections factors,

**Chromatographic profile (GC/FID)**

FID1 A, (Z:\PLANTHER\CT15E008.D)



**Identification results 1 : TANGERINE BATCH N° T10101**

Peak	RT (min)	Compound name	%	Norm (%)	Allergens (%)
1	5,2	ACETONE	0,01		
2	9,3	$\alpha$ -PINENE	0,80		
3	10,9	CAMPHENE	0,01		
4	12,7	$\beta$ -PINENE	0,41		
5	13,2	SABINENE	0,43		
6	14,5	$\Delta$ 3-CARENE	0,10		
7	15,0	$\beta$ -MYRCENE	1,77		
8	15,4	$\alpha$ -PHELLANDRENE	0,03		
9	15,6	$\psi$ -LIMONENE	0,01		
10	15,9	1,4-CINEOLE	0,02		
11	16,2	$\alpha$ -TERPINENE	0,04		
12	17,5	<b>LIMONENE</b>	<b>92,25</b>		92,25
13	17,9	$\beta$ -PHELLANDRENE	0,26		
14	18,9	Cis- $\beta$ -OCIMENE	0,01		
15	19,9	$\gamma$ -TERPINENE	1,49		
16	20,0	Trans- $\beta$ -OCIMENE	0,02		
17	21,5	p-CYMENE	0,52		
18	22,2	TERPINOLENE	0,15		
19	22,4	OCTANAL	0,17		
20	29,2	NONANAL	0,03		
21	32,7	1-HEPTANOL	0,01		
22	32,9	LIMONENE cis-1,2-EPOXIDE	0,06		
23	33,7	LIMONENE trans-1,2-EPOXIDE	0,05		
24	34,2	TERPINOLENE, 4,8-EPOXY	0,01		
25	34,3	OCTYL ACETATE	0,01		
26	34,8	CITRONELLAL	0,02		
27	35,9	$\alpha$ -COPAENE	0,01		
28	36,0	DECANAL	0,13		
29	38,7	LINALOOL	0,39		0,39
30	39,4	1-OCTANOL	0,03		
31	39,9	LIMONENE Cis-8,9-OXIDE	0,01		
32	40,4	LIMONENE Trans-8,9-OXIDE	0,01		
33	41,7	$\alpha$ ,trans-BERGAMOTENE	0,01		
34	42,1	$\beta$ -ELEMENE	0,01		
35	42,5	$\beta$ -CUBEBENE	0,02		
36	42,8	TERPINENE-4-OL	0,03		
37	42,9	$\beta$ -CARYOPHYLLENE	0,02		
38	44,2	Cis-p-2,8-MENTHADIEN-1-OL	0,02		
39	46,4	1-NONANOL	0,01		
40	46,9	trans-p-MENTHA-2,8-DIEN-1-OL	0,02		
41	47,9	NERAL	0,04		0,04
42	48,5	$\alpha$ -TERPINEOL	0,08		
43	49,4	DODECANAL	0,02		
44	50,4	VALENCENE	0,08		
45	50,9	GERANIAL	0,08		0,08

**Identification results 2 : TANGERINE BATCH N° T10101**

Peak	RT (min)	Compound name	%	Norm (%)	Allergens (%)
46	51,3	CARVONE	0,05		
47	51,5	$\alpha$ -FARNESENE	0,02		
48	52,5	$\delta$ -CADINENE	0,01		
49	54,5	PERILLALDEHYDE	0,03		
50	56,7	Trans-CARVEOL	0,03		
51	57,5	p-CYMENE-8-OL	0,01		
52	58,5	Cis-CARVEOL	0,01		
53	68,9	CAPRYLIC ACID	0,03		
54	77,8	$\beta$ -SINENSAL	0,02		
55	79,4	Trans-LIMONENE-1,2-DIOL	0,02		
56	79,5	CAPRIC ACID	0,03		
57	82,7	$\alpha$ -SINENSAL	0,02		
		<b>TOTAL</b>	<b>99,99</b>		<b>92,76</b>