

GC/MS BATCH NUMBER: P60101

ESSENTIAL OIL: PETITGRAIN
BOTANICAL NAME: CITRUS AURANTIUM
ORIGIN: PARAGUAY

KEY CONSTITUENTS PRESENT IN THIS BATCH OF PETITGRAIN OIL	%
LINALYL ACETATE	44.9
LINALOOL	26.7
α -TERPINEOL	6.5
GERANYL ACETATE	4.4
GERANIOL	2.9
NERYL ACETATE	2.6
β -MYRCENE	2.3
trans- β -OCIMENE	1.8
NEROL	1.2
β -PINENE	0.9
β -CARYOPHYLLENE	0.9
SABINENE	0.2

Comments from Robert Tisserand: A beautiful green, soft petitgrain oil. Nine of ten key constituents conform to the ISO standard. Geranyl acetate is 4.4%, against a maximum of 3%, which does not concern me.

CUSTOMER :

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

Sample nature: ESSENTIAL OIL
Botanical species: CITRUS AURANTIUM
Reference name: PETITGRAIN BIGARADE
Batch number: P60101
Origin: PARAGUAY
Part: LEAF
Pyre^essences reference: D230
Date of reception: 03/19/2015
Date analysis: 04/10/2015
Packaging: Amber flask of 5 ml – ambient temperature
Analysis: Classic

Validated report by :

Daniel DANTIN



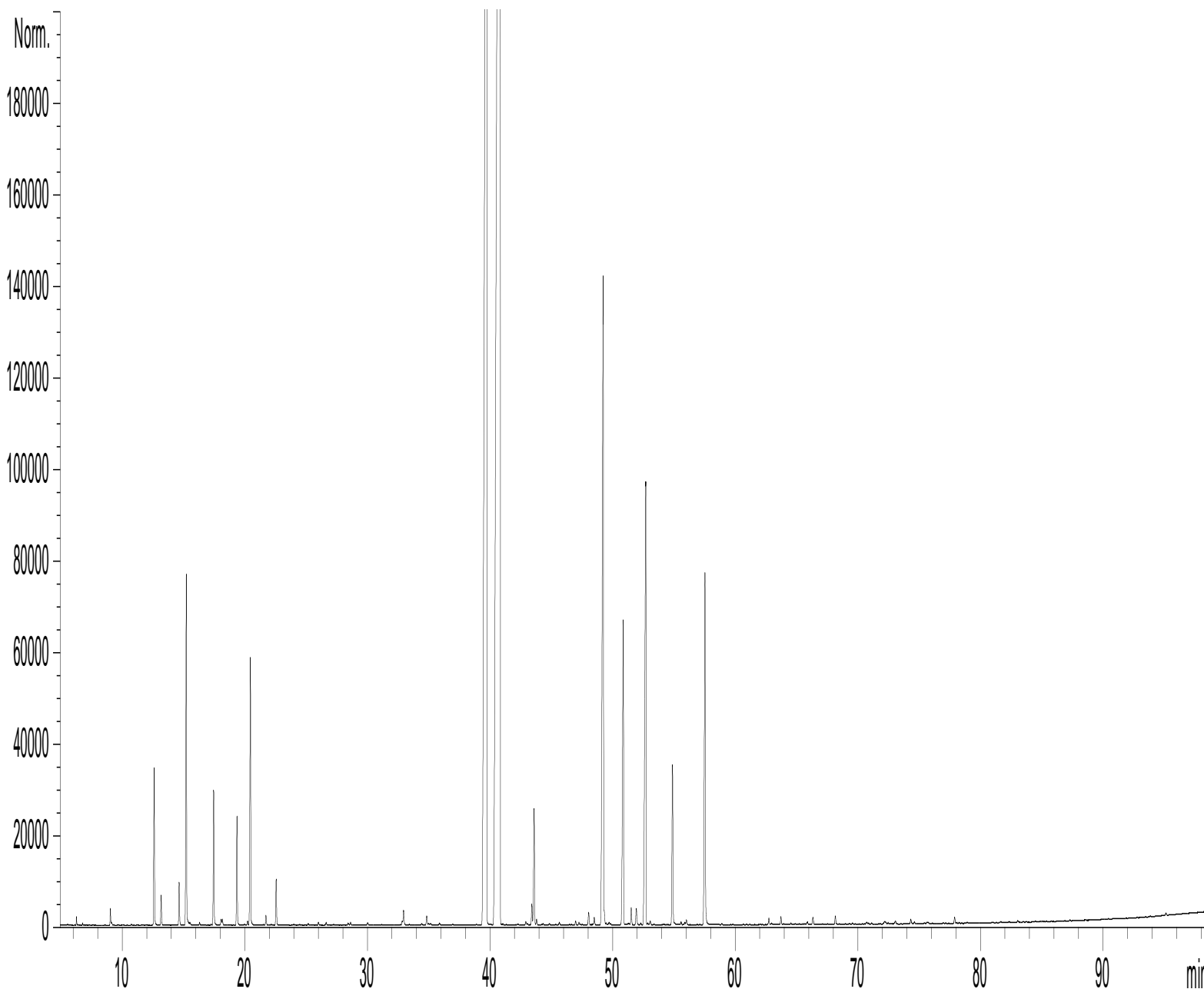
GAS CHROMATOGRAPHY norm NF ISO 11024

Analysis conditions :

CPG 7890 / MS 5975 – Column : VF WAX polar 60 m × 0,25 mm × 0,5 µm
CPG 5890 FID - Column : : HP INNOWAX polar 60 m × 0,25 mm × 0,5 µm
Temperature program : 6 mn to 60 °C –2 °C/mn→250 °C - 20mn to 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, (Y:\PLANTHERICA15D230.D)



Identification results 1 : PETITGRAIN PARAGUAY BATCH P60101

Peak	RT (min)	Compound name	%	Norm (%)	Allergens (%)
1	4,7	ACETONE	0,05		
2	5,5	NONANE	0,01		
3	6,3	ETHANOL	0,03		
4	6,8	METHYL VINYL KETONE	0,01		
5	9,0	α -PINENE	0,09		
6	9,1	α -THUYENE	0,02		
7	10,7	CAMPHENE	0,01		
8	12,6	β -PINENE	0,94	0,5 – 2,0	
9	13,2	SABINENE	0,17	0,1 – 0,5	
10	14,6	Δ 3-CARENE	0,26		
11	15,2	β -MYRCENE	2,26	1,3 – 2,7	
12	15,5	α -PHELLANDRENE	0,02		
13	16,3	α -TERPINENE	0,02		
14	17,2	ISOSYLVESTRENE	0,01		
15	17,4	LIMONENE	0,87		0,87
16	17,6	Cis-ARBUSCULONE	0,01		
17	18,0	1,8-CINEOLE	0,04		
18	18,2	β -PHELLANDRENE	0,04		
19	18,7	2-HEXANAL	0,01		
20	19,3	Cis- β -OCIMENE	0,68		
21	19,9	Trans-ARBUSCULONE	0,01		
22	20,2	γ -TERPINENE	0,03		
23	20,4	Trans-β-OCIMENE	1,78	1,0 – 3,0	
24	21,5	HEXYL ACETATE	0,01		
25	21,7	p-CYMENE	0,07		
26	22,1	ISOTERPINOLENE	0,01		
27	22,5	TERPINOLENE	0,30		
28	24,0	4,8-DIMETHYL-1,3,7-NONATRIENE	0,01		
29	24,5	Cis-3-HEXENYL ACETATE	0,01		
30	25,2	ALIPHATIC COMPONENT	0,01		
31	26,0	6-METHYL-5-HEPTEN-2-ONE	0,02		
32	26,6	1-HEXANOL	0,02		
33	27,2	PINENE EPOXIDE	0,01		
34	28,4	ALLO-OCIMENE	0,02		
35	28,6	3-HEXEN-1-OL	0,02		
36	30,0	NONANAL	0,02		
37	31,1	PERILLENE	0,01		
38	32,8	α ,p-DIMETHYLSTYRENE	0,03		
39	32,8	LINALOOL Cis-OXIDE	0,11		
40	33,4	ACETIC ACID	0,01		
41	34,4	Trans-THUYANOL	0,01		
42	34,8	LINALOOL Trans-OXIDE	0,07		
43	35,0	MENTHONE	0,01		
44	35,1	δ -ELEMENE	0,02		
45	35,5	CITRONELLAL	0,01		
46	35,9	PENTADECANE	0,02		
47	36,9	α -COPAENE	0,02		
48	39,7	LINALOOL	26,65	15 - 30	26,65

Identification results 2 : PETITGRAIN PARAGUAY BATCH P60101

Peak	RT (min)	Compound name	%	Norm (%)	Allergens (%)
49	40,8	LINALYL ACETATE	44,87	40 - 60	
50	41,0	Trans-p-MENTH-2-EN-1-OL	0,01		
51	42,2	SESQUITERPENE	0,01		
52	42,9	β-ELEMENE	0,04		
53	43,4	TERPINENE-4-OL	0,14		
54	43,6	β-CARYOPHYLLENE	0,87	0,3 - 1,5	
55	43,7	LINAYL PROPIONATE	0,04		
56	44,3	AROMADENDRENE	0,02		
57	44,8	Cis-p-MENTH-2-EN-1-OL	0,02		
58	45,6	MENTHOL	0,02		
59	47,0	CITRONELLYL ACETATE	0,03		
60	47,2	E-β-FARNESENE	0,02		
61	48,0	α-HUMULENE	0,10		
62	48,5	NERAL	0,06		0,06
63	49,2	α-TERPINEOL	6,50	3,2 - 6,8	
64	49,3	TERPENYL ACETATE	0,10		
65	49,4	GERANYL FORMIATE	0,02		
66	49,7	LEDENE	0,03		
67	50,6	GERMACRENE D	0,02		
68	50,8	NERYL ACETATE	2,59		
69	51,2	α-MUUROLENE	0,02		
70	51,5	GERANIAL	0,12		0,12
71	51,9	BICYCLOGERMACRENE	0,15		
72	52,2	α-FARNESENE	0,01		
73	52,6	GERANYL ACETATE	4,43	1,0 - 3,0	
74	52,8	CITRONELLOL	0,01		0,01
75	53,0	δ-CADINENE	0,04		
76	53,3	γ-CADINENE	0,01		
77	54,8	NEROL	1,24		
78	55,6	Epoxy-LINALYL ACETATE ISOMER	0,02		
79	55,8	Epoxy-LINALYL ACETATE	0,02		
80	56,0	2,6-DIMETHYL-3,5,-OCTATRIENE-2-OL	0,04		
81	57,5	GERANIOL	2,90	2,0 - 4,5	2,90
82	57,7	p-CYMENE-8-OL	0,10		
83	62,7	2,6-DIMETHYL-3,7-OCTADIENE-2,6-DIOL	0,05		
84	63,7	PALUSTROL	0,06		
85	65,8	ISOCARYOPHYLLENE OXIDE	0,02		
86	66,3	CARYOPHYLLENE OXIDE	0,06		
87	68,1	Trans-NEROLIDOL	0,06		
88	70,7	METHYL N-METHYL-ANTHRANILATE	0,03		
89	71,1	SESQUITERPENOL	0,01		
90	72,2	PENTADECANONE TRIMETHYL	0,04		
91	73,0	SPATHULENOL	0,03		
92	74,3	EUGENOL	0,04		0,04
93	74,6	MINT SULFIDE Mw=236	0,01		
94	77,9	ISOSPATHULENOL	0,04		
95	95,1	PHYTOL	0,02		
		TOTAL	99,96		30,65