PLANT THERAPY
100% PURE ESSENTIAL OILS

GC/MS BATCH NUMBER: CJ0101

ESSENTIAL OIL: COPAIBA BALSAM
BOTANICAL NAME: COPAIFERA OFFICINALIS
ORIGIN: BRAZIL

KEY CONSTITUENTS IN THIS BATCH OF COPAIBA BALSAM OIL	%
β-CARYOPHYLLENE	61.6
α-HUMULENE	8.4
GERMACRENE D	5.4
Trans-α-BERGAMOTENE	2.9
α-COPAENE	2.8
β-BISABOLENE	2.1
δ-CADINENE	1.5
γ-MUUROLENE	1.1

Comments from Robert Tisserand: Has the characteristic smooth butteriness of a quality copaiba balsam oil, and has a good concentration of beta-caryophylllene, the major constituent.

CUSTOMER :

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

Sample nature:	ESSENTIAL OIL
Botanical species:	COPAIFERA OFFICINALIS
Reference name:	COPAIBA BALSAM
Batch number:	CJ0101
Origin:	BRAZIL
Part:	RESIN
Pyrenessences reference:	D913
Date of reception:	06/09/2015
Date analysis:	06/16/2015
Packaging:	Amber flask of 5 ml – ambiant temperature
Wanted Analysis:	Classic analysis

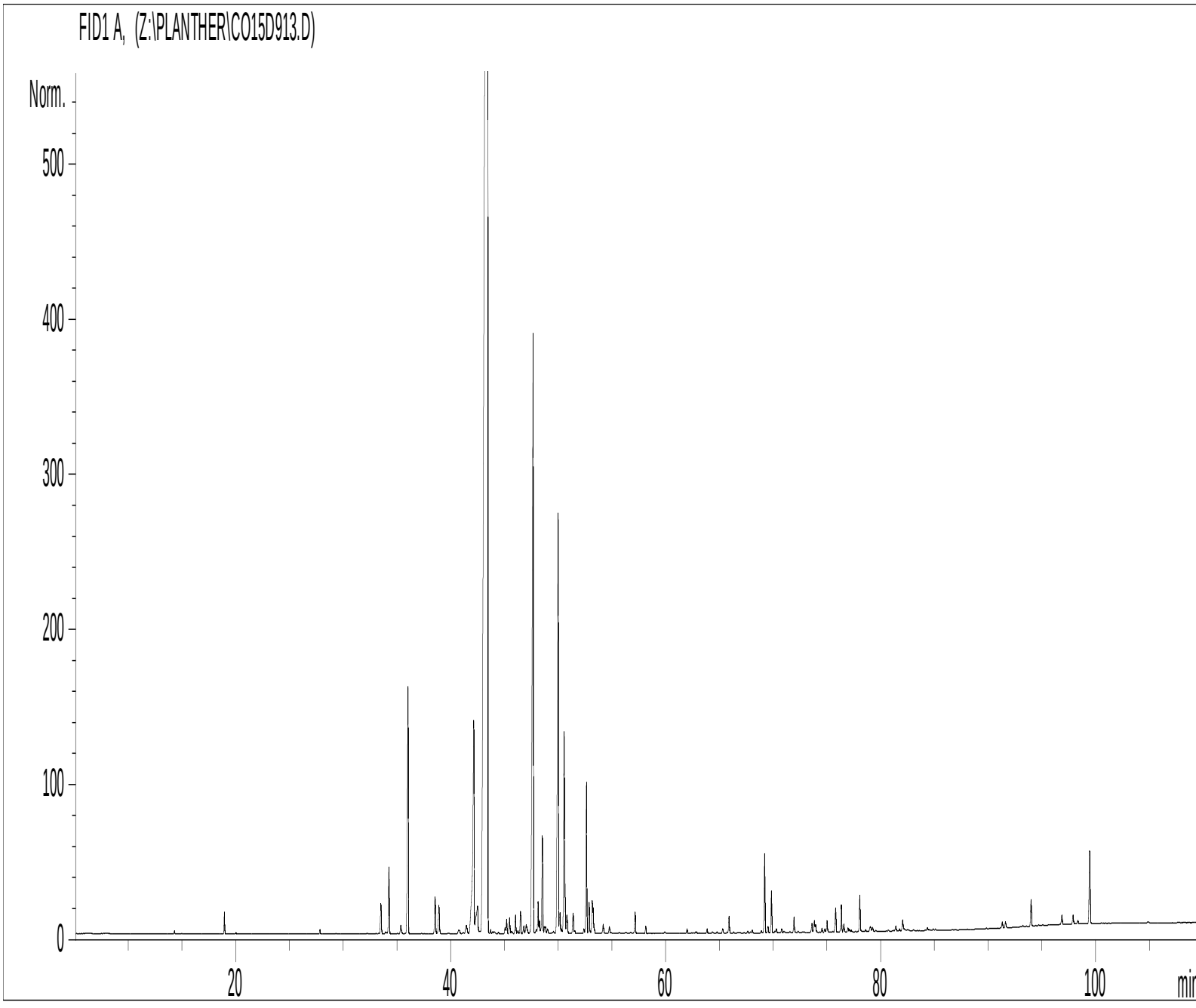
Validated report by : **Daniel DANTIN**

GAS CHROMATOGRAPHY norm NF ISO 11024

Analysis conditions :

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



Identification results 1 : COPAIBA BRAZIL BATCH CJ0101

Peak	RT (min)	Compound name	%	Norm (%)	Allergens (%)
1	14,2	p-MENTH-2-ENE	0,02		
2	19,0	Cis-β-OCIMENE	0,16		
3	20,0	Trans-β-OCIMENE	0,01		
4	27,8	ALLO-OCIMENE ISOMER	0,03		
5	33,5	α-CUBEBENE	0,35		
6	34,3	δ-ELEMENE	0,72		
7	35,4	YLANGENE	0,11		
8	36,0	**α-COPAENE**	**2,82**		
9	38,6	CYPERENE	0,46		
10	38,9	β1-CUBEBENE	0,37		
11	41,5	FARNESANE Mw=206 + α-cis-BERGAMOTENE	0,17		
12	42,0	ε-CADINENE	0,70		
13	42,2	**α-trans-BERGAMOTENE**	**2,91**		
14	42,5	β-ELEMENE	0,69		
15	43,4	**β-CARYOPHYLLENE**	**61,62**		
16	43,7	AROMADENDRENE	0,04		
17	45,0	Epi-β-SANTALENE	0,06		
18	45,2	GERMACRENE A	0,15		
19	45,5	Z-β-FARNESENE ISOMER	0,17		
20	45,7	β-SANTALENE	0,03		
21	46,3	ALLO-AROMADENDRENE	0,04		
22	46,5	E-β-FARNESENE	0,21		
23	46,8	ZONARENE	0,09		
24	47,0	GURJUNENE ISOMER	0,16		
25	47,7	**α-HUMULENE**	**8,37**		
26	48,1	Z-β-FARNESENE	0,37		
27	48,3	γ-CURCUMENE	0,13		
28	48,5	γ-MUUROLENE	1,09		
29	48,7	CALARENE	0,06		
30	48,8	SESQUITERPENE	0,07		
31	49,0	LEDENE	0,06		
32	50,0	**GERMACRENE D**	**5,35**		
33	50,2	MUUROLENE ISOMER	0,32		
34	50,5	β-BISABOLENE	2,13		
35	50,6	α-MUUROLENE	0,31		
36	50,8	CUBENENE ISOMER	**0,24**		
37	51,4	BICYCLOGERMACRENE	0,24		
38	51,6	α-FARNESENE	0,03		
39	52,4	FARNESENE ISOMER	0,05		
40	52,6	δ-CADINENE	1,53		
41	52,9	γ-CADINENE	0,32		
42	53,1	β-SESQUIPHELLANDRENE	0,28		
43	53,3	Cis-α-BISABOLENE	0,25		
44	53,3	α-CURCUMENE	0,05		
45	54,2	CADINA-1,4-DIENE	0,10		

Identification results 2 : COPAIBA BRAZIL BATCH CJ0101

Peak	RT (min)	Compound name	%	Norm (%)	Allergens (%)
46	54,8	α-AMORPHENE	0,07		
47	57,2	CALAMENENE + GERMACRENE B	0,22		
48	58,1	OXYGENED COMPONENT Mw=208	0,07		
49	59,9	EPI-CUBEBOL	0,02		
50	62,0	α-CALACORENE	0,04		
51	62,9	CUBEBOL	0,02		
52	63,9	β-CALACORENE	0,04		
53	65,3	ISOCARYOPHYLLENE OXIDE	0,05		
54	65,9	CARYOPHYLLENE OXIDE	0,17		
55	66,3	SESQUITERPENOL Mw=222	0,01		
56	68,1	LEDOL	0,05		
57	68,9	EPOXY-6,7-HUMULENE	0,03		
58	69,2	CARYOPHYLLENOL	0,82		
59	69,5	EPI-CUBENOL	0,08		
60	69,8	CUBENOL	0,44		
61	70,3	GLOBULOL	0,06		
62	70,8	VIRIDIFLOROL	0,04		
63	71,9	DIHYDROISOCARYOPHYLLENE Mw=206	0,16		
64	73,6	SESQUITERPENOL	0,09		
65	73,8	SESQUITERPENIC HYDRATE	0,20		
66	71,6	CYCLOUNDECADIENOL TETRAMETHYL ISOMERE	0,04		
67	75,0	T-CADINOL	0,12		
68	75,8	α-MUUROLOL	0,27		
69	76,4	δ-CADINOL	0,28		
70	76,6	SESQUITERPENOL Mw=222	0,08		
71	77,0	SESQUITERPENOL	0,08		
72	78,1	α-CADINOL	0,39		
73	79,1	EUDESMA-7-EN-4-OL	0,06		
74	81,4	SESQUITERPENOL Mw=222	0,06		
75	82,1	DITERPENE Mw=272	0,14		
76	84,4	SESQUITERPENE EPOXIDE	0,03		
77	84,9	KAUR-16-ENE	0,03		
78	91,3	DITERPENIC AROMATIC COMPONENT	0,07		
79	94,0	DITERPENIC AROMATIC COMPONENT	0,30		
80	96,9	BIPHENANTHRENE COMPONENT	0,11		
81	97,9	MANOOL	0,11		
82	99,5	DITERPENE Mw=272	0,91		
		TOTAL	**99,20**		**-**