

# Certificate of Analysis

Analysed essential oil : Cardamom

Analysis date : November, 5<sup>th</sup> 2013

Batch : 304VA304

Shelf life : December 2016

## ❖ General description

Essential oil	Cardamom	Origin	Guatemala
Latin name	<i>Ellettaria cardamomum</i>		

## ❖ Organoleptic characteristics

Appearance	Clear and mobile liquid
Colour	Colourless
Odour	Characteristic

## ❖ Physico-chemical characteristics

	Results (at 20°C)	Technical specifications				
Specific gravity	0.922	0.919	<	d	<	0.936
Refractive index	1.4622	1.4620	<	RI	<	1.4680
Optical rotation	+27.85°	+22°	<	$[\alpha]^{20}_d$	<	+41°

## ❖ Volatile elucidation

GC : Perkin Elmer – Clarus 500

Column : Elite - 1, 30 m, Ø 0.25 mm, 0.25 µm df

Injection : split

Detector : FID

Carrier gas : H<sub>2</sub>

⇒ See Chromatogram : non-polar column

Date : 2015-03-09

Software Version : 6.2.0.0:B27  
Sample Name : Cardamome  
Instrument Name : CLARUS 500  
Rack/Vial : 0/9  
Sample Amount : 1.000000  
Cycle : 9

Date : 05/11/2013 15:39:59  
Data Acquisition Time : 05/11/2013 06:56:13  
Channel : A  
Operator : Davenne  
Dilution Factor : 1.000000

Result File :  
Sequence File : C:\Sequences\CPG\2013\131104bis.seq

## Rapport d'analyse

colonne apolaire

Pic #	Component Name	TR [min]	Area [%]
1	thujene <alpha>	9.82	0.19
2	pinene <alpha>	10.07	1.34
3	sabinene	11.51	3.59
4	pinene <beta>	11.66	0.38
5	myrcene	12.27	1.86
6	terpinene <alpha>	13.35	0.09
7	cymene <p>	13.49	0.17
8	cineole <1.8> + limonene	13.83	32.37
9		14.73	0.07
10		15.14	0.22
11	sabinene hydrate <cis>	15.28	0.42
12		16.47	0.09
13	sabinene hydrate <trans>	16.60	0.22
14	linalool	16.78	4.02
15	borneol	19.50	0.11
16	terpinen-4-ol	20.14	0.79
17	terpineol <alpha>	20.65	1.89
18		22.22	0.39
19	neral	22.62	0.21
20	geraniol	23.57	0.81
21	linalool acetate + geranial	23.81	5.78
22		26.27	0.14
23		26.49	0.09
24	terpinyl acetate <alpha>	27.77	41.84
25	geranyl acetate	28.99	0.49
26		29.20	0.05
27		29.37	0.04
28		29.91	0.05
29		30.77	0.10
30		31.02	0.05
31		31.30	0.08
32		31.47	0.02
33		31.62	0.07
34		33.38	0.08
35	selinene <beta>	33.58	0.33
36	selinene <alpha>	33.99	0.10
37		34.62	0.11
38		35.56	0.06
39	nerolidol <(E)>	36.36	1.04
40		37.14	0.17
41		41.98	0.06
		100.00	

# Chromatogram

Sample Name : Cardamome      Sample #: 304VA304      Page 1 of 1  
FileName : C:\Data\Colonne Apolaire\Huiles Essentielles\Cardamome\2013\cardamome 131104.raw  
Date : 05/11/2013 15:40:02  
Method : cardamome.mth      Time of Injection: 05/11/2013 06:56:13  
Start Time : 0.00 min      End Time : 82.00 min      Low Point : -47.20 mV      High Point : 993.88 mV  
Plot Offset: -47.20 mV      Plot Scale: 1041.1 mV

