

# Certificate of Analysis

Analysed essential oil : Khella

Analysis date : January, 12<sup>th</sup> 2016

Batch : 011RD602

Shelf life : February 2018

## ❖ General description

Essential oil	Khella	Origin	Morocco
Latin name	<i>Ammi visnaga</i>		

## ❖ Organoleptic characteristics

Appearance	Clear and mobile liquid
Colour	Pale yellow
Odour	Characteristic

## ❖ Physico-chemical characteristics

	Results (at 20°C)	Technical specifications				
Specific gravity	0.868	0.860	<	d	<	0.890
Refractive index	1.4423	1.4400	<	IR	<	1.4450
Optical rotation	-7.60°	-12°	<	$[\alpha]^{20}_d$	<	-5°

## ❖ 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 : 2016-01-12

Software Version : 6.2.0.0:B27  
Sample Name : Khella  
Instrument Name : CLARUS 500  
Rack/Vial : 0/5  
Sample Amount : 1.000000  
Cycle : 5

Date : 12/01/2016 16:11:50  
Data Acquisition Time : 11/01/2016 22:59:47  
Channel : A  
Operator : Davenne  
Dilution Factor : 1.000000

Result File :  
Sequence File : C:\Sequences\CPG\2016\160111.seq

## Rapport d'analyse

colonne apolaire

Pic #	Component Name	TR [min]	Area [%]
1		4.08	0.05
2	isobutyl isobutyrate	8.73	1.06
3	thujene <alpha>	9.54	0.58
4	pinene <alpha>	9.80	0.48
5	camphene	10.26	0.06
6		10.89	0.05
7	sabinene	11.22	0.83
8	pinene <beta>	11.37	0.14
9	myrcene	11.98	0.90
10	isobutyl-2-methyl butanoate	12.27	2.47
11	amyl isovalerate	12.65	1.39
12	isoamyl isobutyrate	12.84	10.50
13	terpinene <alpha>	13.05	0.15
14	cymene <p>	13.18	0.34
15	limonene + cineole <1.8>	13.56	1.29
16	ocimene <(Z)-beta>	13.92	1.88
17	ocimene <(E)-beta>	14.40	3.23
18		14.53	0.31
19	terpinene <gamma>	14.83	0.10
20	linalool oxide <cis>	15.21	0.11
21	linalool oxide <trans>	15.88	0.11
22	terpinolene	16.16	0.14
23		16.33	0.05
24	linalool+butyl angelate	16.55	34.26
25	isoamyl 2-methyl-butanoate	16.79	18.33
26	amyl valerate	16.93	6.07
27		17.08	0.20
28		18.21	0.11
29	isoprenyl isovalerate	18.44	0.92
30	isoprenyl valerate	18.66	0.24
31	terpinen-4-ol	19.81	0.33
32	terpineol <alpha>	20.31	0.63
33		21.10	0.05
34	pulegone	22.15	0.36
35	nerol	22.40	0.09
36		22.54	0.04
37		22.71	0.06
38	geraniol	23.25	0.12
39		24.73	0.11
40		24.89	0.09
41		27.40	0.05
42		28.55	0.51
43		28.84	0.31
44	copaene <alpha>	29.04	0.16
45	bourbonene <beta>	29.32	0.31
46	caryophyllene <(E)>+?	30.60	0.76
47		31.08	0.07
48		31.44	0.06
49		32.15	0.26
50		32.65	0.29
51	germacrene D+?	33.02	1.27
52	linalool isovalerate+?	34.06	1.26
53		34.20	0.06
54	sesquiphellandrene <beta>	34.68	0.34
55		35.41	0.13
56		35.84	0.07
57		36.42	0.21
58		36.56	0.13

12/01/2016 16:11:50 Result:

Pic #	Component Name	TR [min]	Area [%]
59		37.44	0.07
60		38.76	0.06
61		42.68	0.45
62		45.76	0.10
63		46.07	0.05
64		46.32	0.18
65		52.67	0.44
66		54.49	0.09
67	geranyl linalool <(E,E)>	54.94	3.73
68		55.71	0.09
69		56.25	0.14
70		57.62	0.12
			100.00

Chromatogram

Sample Name : Khella  
File Name : C:\Data\Colonne Apolaire\Huiles Essentielles\Khella\2016\khella 160111.raw  
Date : 12/01/2016 16:11:50  
Method : khella.mth  
Start Time : 0.00 min  
Time of Injection: 11/01/2016 22:59:47  
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

