

**Date:** August 20<sup>th</sup> ,2020

**CERTIFICATE OF ANALYSIS - GC PROFILING**

**Sample identification:** Fir Needle Siberia - 200445183

**Type:** Essential oil

**Source:** Abies sibirica

**ANALYSIS**

Method: 10152018\_10:1split.m - Analysis of the composition of an essential oil, or other volatile liquid, by GC-FID, identifications validated by GC-MS.

**Analysis date:** August 19<sup>th</sup> ,2020

**Physical aspect:** Colorless liquid

**CONCLUSION**

No adulterant, contaminant or diluent has been detected using this method. This oil complies with ISO specs.

**Analyzed and approved by:**

Dr. Hussam Bdour  
Chief Quality Control Chemist  
IL Health & Beauty Natural Oils Co., Inc.



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Peak	Compound	RT	Area Sum %
1	Santene	7.081	3.15
2	Tricyclene	8.638	2.41
3	$\alpha$ -Thujene	8.992	0.07
4	$\alpha$ -Pinene	9.309	12.34
5	Camphene	10.085	24.27
6	Thuja-2,4(10)-diene	10.342	0.01
7	unknown	11.271	0.03
8	Sabinene + $\beta$ -Pinene	11.562	2.05
9	$\beta$ -Myrcene	12.761	0.66
10	$\alpha$ -Phellandrene	13.384	0.23
11	$\delta$ 3-carene	13.817	11.48
12	$\alpha$ -Terpinene	14.218	0.13
13	p-Cymene	14.779	0.05
14	$\beta$ -Phellandrene + Limonene + 1,8-Cineole	15.079	8.2
15	$\gamma$ -Terpinene	17.252	0.17
16	unknown	19.058	0.01
17	Fenchone	19.318	0.03
18	$\alpha$ -Terpinolene	19.44	1.34
19	Linalool	20.763	0.03
20	endo-Fenchol	21.28	0.02
21	$\alpha$ -Campholenal	22.387	0.02
22	trans-Pinocarveol	23.164	0.02
23	Camphor	23.545	0.26
24	Camphene hydrate	23.834	0.09
25	Isoborneol	24.652	0.01
26	Pinocarbonyl	25.194	0.01
27	Borneol	25.438	1.94
28	Terpinen-4-ol	26.452	0.09
29	Cryptone	27.186	0.02
30	p-Cymen-8-ol	27.33	0.02
31	$\alpha$ -Terpineol	27.652	0.17
32	Myrtenal	27.954	0.01
33	Myrtenol	28.104	0.01
34	Methyl chavicol	28.382	0.01
35	Methyl chavicol	28.975	0.04
36	endo-Fenchyl acetate	30.143	0.03
37	Thymol methyl ether	31.627	0.05
38	Carvone	32.09	0.02
39	Piperitone	32.85	0.01
40	Phellandral	34.407	0.02
41	Bornyl acetate	35.902	27.13
42	2-Undecanone	36.756	0.03
43	$\alpha$ -Longipinene	40.302	0.03

44	Cyclosativene II	41.753	0.02
45	$\alpha$ -Ylangene	42.243	0.02
46	$\alpha$ -Copaene	42.601	0.03
47	Sativene	43.488	0.01
48	$\beta$ -Elemene	44.194	0.16
49	Longifolene	44.477	0.09
50	$\beta$ -Caryophyllene	45.856	1.31
51	unknown	48.013	0.04
52	$\alpha$ -Humulene	48.496	0.63
53	(E)- $\beta$ -Farnesene	49.741	0.02
54	trans-Cadina-1(6),4-diene	50.369	0.02
55	$\gamma$ -Muurolene	50.62	0.01
56	Germacrene D	50.873	0.03
57	Ar-Curcumene	51.433	0.01
58	$\alpha$ -Selinene	51.698	0.04
59	Bicyclogermacrene	51.981	0.04
60	$\alpha$ -Muurolene	52.518	0.01
61	$\gamma$ -Cadinene	53.409	0.15
62	$\beta$ -Curcumene	53.774	0.05
63	$\delta$ -Cadinene	54.27	0.02
64	$\alpha$ -Cadinene	55.068	0.1
65	(E)- $\alpha$ -Bisabolene	56.043	0.02
66	Spathulenol	57.723	0.03
67	Caryophyllene oxide	58.172	0.02
68	$\tau$ -Cadinol	62.377	0.01
69	unknown	63.605	0.02
70	unknown	63.83	0.07
71	$\alpha$ -Bisabolol	63.883	0.2
72	Cembrene A	67.7	0.01
73	Manoyl oxide	67.981	0.03
74	13-epi-Manoyl oxide	68.179	0.02
75	Manool	68.53	0.02
	<b>Total identified</b>		<b>99.83%</b>

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