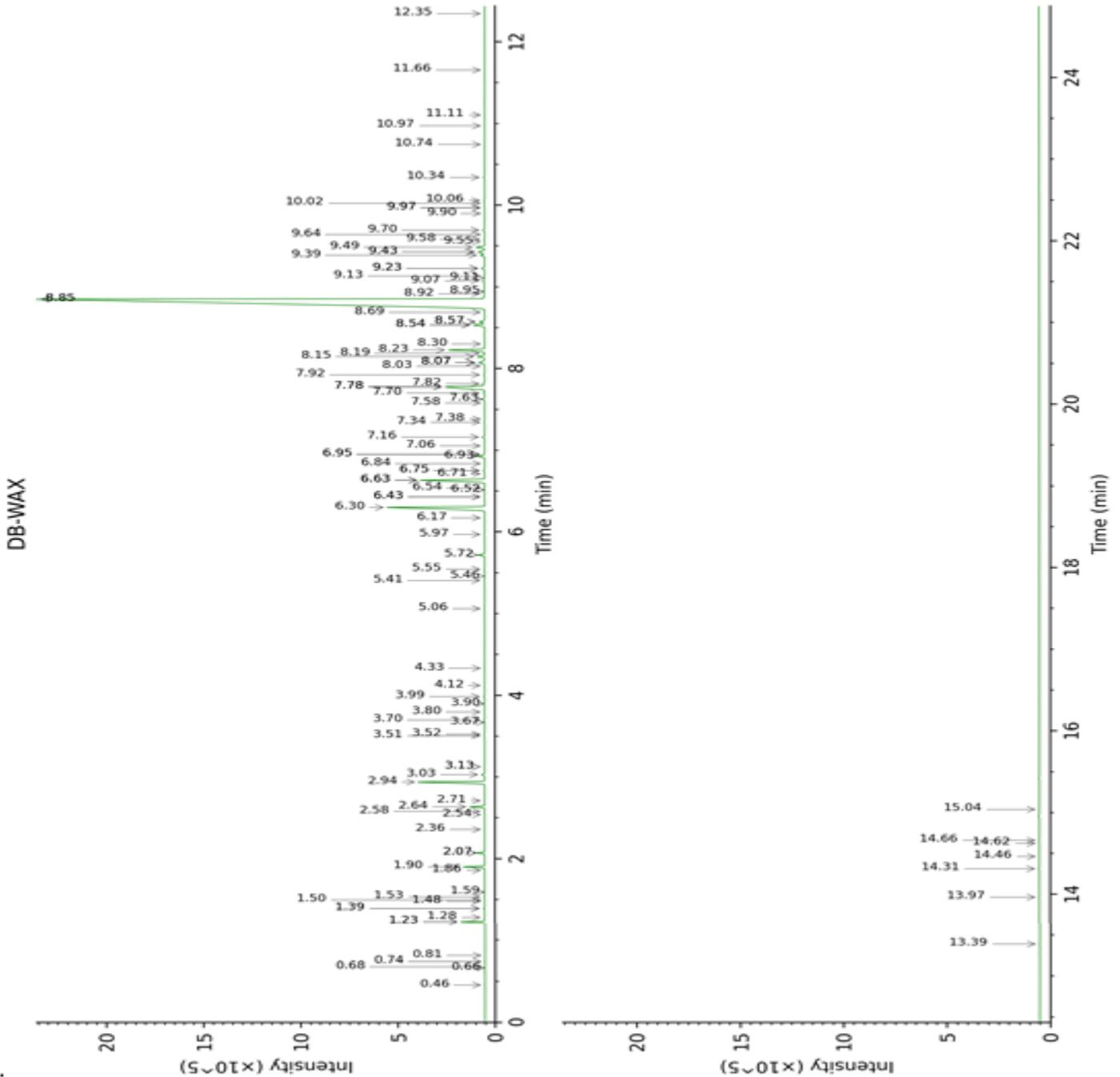


**GCMS ANALYSIS**

PRODUCT NAME: PEPPERMINT JAPANESE ORGANIC ESSENTIAL OIL - 50038  
 DATE: September 14, 2023



*Due to volume turnover, this report is not lot specific, It is representative of the quality of this oil produced by the manufacturer of this product, Specific lots may vary slightly as is the case in natural products,*

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**PRODUCT NAME: PEPPERMINT JAPANESE ORGANIC ESSENTIAL OIL - 50038**

Peak	RT (min)	Compound name	%
1	0,38	Ethanol	0.01
2	0,46	Isobutyral	tr
3	0,54	2-Methyl-3-buten-2-ol	tr
4	0,59	Isobutanol	tr
5	0,65	Isovaleral	0.01
6	0,68	2-Methylbutyral	0.01
7	0,83	2-Ethylfuran	tr
8	1,05	Isoamyl alcohol	0.01
9	1.07	2-Methylbutanol	0.01
10	2,13	Ethyl 2-methylbutyrate	tr
11	2,23	(3Z)-Hexenol	0.03
12	2,43	Hexanol	0.01
13	2,70	<i>trans</i> -2,5-Diethyltetrahydrofuran	0.04
14	2,98	Hashishene	0.01
15	3,13	$\alpha$ -Thujene	0.02
16	3,20	$\alpha$ -Pinene	0.78
17	3,37*	3-Methylcyclohexanone	0.08
18	3,37*	<i>trans</i> -3-Methylcyclohexanol	[0.08]
19	3,40*	Camphene	[0.08]
20	3,40*	$\alpha$ -Fenchene	[0.08]
21	3,50	Thuja-2,4(10)-diene	0.01
22	3,83*	Sabinene	1.18
23	3.83*	$\beta$ -Pinene	[1.18]
24	3.98	Octen-3-ol	0.01
25	4.06	<i>cis</i> -Carane	0.02
26	4,10	Octan-3-one	0.01
27	4,15	Myrcene	0.61
28	4,26	Octan-3-ol	0.36
29	4,30*	$\alpha$ -Phellandrene	0.03
30	4,30*	Pseudolimonene	[0.03]

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Peak	RT (min)	Compound name	%
31	4,38	$\Delta$ 3-Carene	0.01
32	4,49	$\alpha$ -Terpinene	0.02
33	4,61	para-Cymene	0.04
34	4,69*	Limonene	3.32
35	4,69*	1,8-Cineole	[3.32]
36	4.80	2-Ethylhexanol	0.04
37	4.90	(Z)- $\beta$ -Ocimene	0.03
38	5,05	(E)- $\beta$ -Ocimene	0.04
39	5,17	$\gamma$ -Terpinene	0.03
40	5,30	cis-Sabinene hydrate	0.01
41	5,39	cis-Linalool oxide (fur.)	0.02
42	5,48	Octanol	0.07
43	5,57	Isoterpinolene	0.03
44	5,63*	Terpinolene	0.11
45	5,63*	para-Cymenene	[0.11]
46	5,77	Unknown [m/z 71, 81(38), 95 (33), 55 (28), 41(22), 82 (17)...]	0.03
47	5.80	trans-Sabinenehydrate	0.02
48	5.89*	Nonan-3-ol	0.10
49	5.89*	Linalool	[0.10]
50	5.93	Nonanal	0.04
51	5.97	2-Methylbutyl 2-methylbutyrate	0.01
52	6.13	Octen-3-yl acetate	0.02
53	6.16	trans-para-Mentha-2,8-dien-1-ol	0.03
54	6.40	cis-para-Mentha-2,8-dien-1-ol	0.03
55	6.49	trans-Sabinol	0.02
56	6.53	Isopulegol	0.94
57	6.66	Menthone	6.72
58	6.80*	Menthofuran	3.95
59	6.80*	Isomenthone	[3.95]
60	6.88	neo-Menthol	1.96

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Peak	RT (min)	Compound name	%
61	7,14*	Menthol	71.73
62	7,14*	Terpinen-4-ol	[71.73]
63	7,18*	Isomenthol	0.34
64	7,18*	para-Cymen-8-ol	[0.34]
65	7,23	Isopulegol isomer?	0.02
66	7,30*†	neoiso-Menthol	0.32
67	7,30*†	α-Terpineol	[0.32]
68	7,32†	Myrtenal	[0.32]
69	7,37*	<i>trans</i> -Isopiperitenol	0.05
70	7.37*	Unknown [m/z 121, 67 (75), 93 (64), 95 (52), 81 (47), 41 (42)...]	[0.05]
71	7.43	Unknown [m/z 43, 99(84), 81 (46), 986 (43), 126 (36), 71 (28)... 170(12)]	0.03
72	7.52	<i>trans</i> -Piperitol	0.04
73	7.66*	Octyl acetate	0.07
74	7.66*	<i>cis</i> -Isopiperitenol	[0.07]
75	7.73	<i>trans</i> -Carveol	0.01
76	7.90	(3 <i>Z</i> )-Hexenyl 2-methylbutyrate	0.01
77	7.95*	Pulegone	0.66
78	7.95*	(3 <i>Z</i> )-Hexenyl isovalerate	[0.66]
79	8.00*	Carvone	0.40
80	8.00*	(2 <i>E</i> )-Hexenyl isovalerate	[0.40]
81	8.10	Unknown [m/z 69, 41 (59), 93 (46), 68 (22), 43(21), 80 (19)...]	0.03
82	8.17	Piperitone	0.47
83	8.43	Isopiperitenone	0.01
84	8.55	neo-Menthyl acetate	0.05
85	8.58	Decanol	0.06
86	8.68	2-Ethylmenthone?	0.01
87	8.83*	Menthyl acetate	2.26
88	8.83*	Dihydroedulan II	[2.26]
89	8.89	Thymol	0.01
90	9.01	Isomenthyl acetate	0.06

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Peak	RT (min)	Compound name	%
91	9.07	Unknown [m/z 43, 136(55), 121 (55), 107 (48),93 (48), 81 (30),9(29)...]	0.05
92	9.13	Unknown [m/z 43, 121(78), 107 (70), 136 (69),93 (66), 137 (50)... 196?(t)]	0.04
93	9.41	Bicycloelemene	0.02
94	9.46	Piperitenone	0.01
95	9.73	Eugenol	0.04
96	9.87	$\alpha$ -Ylangene	0.04
97	9.95	$\alpha$ -Copaene	0.02
98	10.07	$\beta$ -Bourbonene	0.15
99	10.20	$\beta$ -Elemene	0.04
100	10.26*	Unknown [m/z 107,121 (79), 119 (66), 91(58), 136 (55), 105(49)... 194(1)]	0.02
101	10.26*	$\beta$ -Longipinene	[0.02]
102	10.31	Longifolene	0.04
103	10.53*	$\beta$ -Caryophyllene	0.46
104	10.53*	$\beta$ -Ylangene	[0.46]
105	10.67*	$\beta$ -Copaene	0.03
106	10.67*	Unknown [m/z 177,109 (32), 192 (26), 95(25), 137 (23)]	[0.03]
107	10.80	Aromadendrene	0.01
108	10.83	<i>trans</i> - $\alpha$ -Bergamotene	0.01
109	10.88	Isogermacrene D	0.01
110	10.90	<i>cis</i> - $\beta$ -Bergamotene?	0.04
111	10.96	9-epi-Isocaryophyllene	0.02
112	10.99	$\alpha$ -Humulene	0.03
113	11.05	Muurolo-4,11-diene	0.02
114	11.13	( <i>E</i> )- $\beta$ -Farnesene	0.02
115	11.16	9-epi- $\beta$ -Caryophyllene	0.01
116	11.33	$\gamma$ -Muurolole	0.02
117	11.37	Germacrene D	0.44
118	11.57*	Bicyclogermacrene	0.12
119	11.57*	Viridiflorene	[0.12]
120	11.66	$\alpha$ -Muurolole	0.02

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Peak	RT (min)	Compound name	%
121	11.68	ε-Amorphene	0.01
122	11.81	γ-Cadinene	0.02
123	11.95	δ-Cadinene	0.05
124	12.52	(E)-Nerolidol	0.02
125	12.61	Spathulenol	0.02
126	12.65	Caryophyllene oxide	0.02
127	13.33	(3Z)-Hexenyl phenylacetate	0.04
128	13.42*	τ-Cadinol	0.02
129	13.42*	τ-Muurolol	[0.02]
130	13.58	α-Cadinol	0.02
131	14.48	Mint sulfide?	0.01
132	15.66	Octyl phenylacetate?	0.02
133	17.45	Unknown [m/z 99, 43(43), 69 (37), 71 (37), 41(28)...]	0.01
		<b>TOTAL</b>	<b>99.59</b>

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