



Essential Oil University

GC/MS Report

Item	Lot
Spruce EO Black <i>Picea mariana</i>	0B
Date	Analyst
9/11/2024	Dr. Robert S. Pappas

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The analysis of this batch sample, Spruce EO Black, meets the expected chemical profile for authentic essential oil of *Picea mariana*. No contamination or adulteration was detected. The results provided in this GCMS quality analysis reflect the chemical composition of the oil and lot referenced above on the date of analysis.



Sample Information

Company: Revive**Sample Name:** Spruce EO Black**Botanical Name:** Picea mariana**Lot Number:** 0B**Production Method:** Steam distilled**Sample Type:** EO - Single**Country of Origin:** Canada**Analysis Date:** 9/11/2024**Date of Distillation:** September 2024

GC/MS

Inst. ID: Shimadzu GCMS-QP2010Ultra**Injection Type:** Split**Split Ratio:** 24.4**Column Type:** ZB-5**Injection Volume:** 0.1 µL**Temperature Program:** 2C/min

Physical Data

ANALYSIS

Optical Rotation @20°C

Refractive Index @20°C

Specific Gravity @20°C

METHOD

USP[781]

USP[831]

USP[841]

RESULTS

-26.32

1.46995

0.90002



Ret. Time	Component	Ret. Idx.	Conc. %	
9.750	Santene	879	1.11%	
10.755	Unidentified	904	0.06%	
11.040	Unidentified	909	0.01%	
11.692	Tricyclene	921	1.61%	
11.844	alpha-Thujene	923	0.13%	
12.274	alpha-Pinene	931	19.29%	
12.567	Unidentified	937	0.03%	
13.051	alpha-Fenchene	945	0.16%	
13.156	Camphene	947	11.39%	
13.342	Thuja-2,4(10)-diene	951	0.02%	
14.323	Cymene analogue	968	0.03%	
14.405	Sabinene	970	0.06%	
14.719	beta-Pinene	976	10.45%	
15.337	Myrcene	987	1.88%	
15.963	Unidentified	998	0.01%	
16.392	alpha-Phellandrene	1005	0.23%	
16.558	delta-3-Carene	1008	10.06%	
16.906	1,4-Cineole	1013	0.02%	
17.050	alpha-Terpinene	1015	0.37%	
17.528	para-Cymene	1023	0.27%	
17.834	Limonene	1027	6.7%	IFRA
17.926	beta-Phellandrene	1029	0.64%	
17.991	1,8-Cineole	1030	0.18%	
18.232	cis-beta-Ocimene	1033	0.01%	
18.933	trans-beta-Ocimene	1044	0.02%	
19.690	gamma-Terpinene	1056	0.22%	
20.595	Pinol	1070	0.03%	
21.227	Unidentified	1079	0.03%	
21.499	Terpinolene	1083	1.18%	
21.699	Unidentified	1086	0.02%	
21.814	para-Cymenene	1088	0.12%	
22.204	alpha-Campholenal	1094	0.04%	
22.440	Linalool	1098	0.23%	IFRA
23.758	endo-Fenchol	1117	0.06%	
24.293	Unidentified	1125	0.05%	
25.236	trans-Pinocarveol	1138	0.05%	
25.662	Camphor	1145	0.05%	
26.215	trans-beta-Terpineol	1153	0.07%	
26.595	Unidentified	1158	0.01%	
26.788	Isoborneol	1161	0.08%	



Ret. Time	Component	Ret. Idx.	Conc. %	
27.379	Borneol	1170	0.93%	
27.673	Unidentified	1174	0.01%	
27.987	Terpinen-4-ol	1178	0.2%	
28.426	Unidentified	1185	0.01%	
28.532	Unidentified	1186	0.02%	
28.991	alpha-Terpineol	1193	1.03%	
29.529	Unidentified	1201	0.01%	
29.919	Unidentified	1207	0.01%	
30.528	endo-Fenchyl acetate	1215	0.16%	
31.154	Unidentified	1225	0.01%	
31.348	Thymol methyl ether	1227	0.02%	
34.565	Unidentified	1275	0.05%	
34.833	Unidentified	1279	0.08%	
35.119	Bornyl acetate	1283	27.59%	
35.244	Isobornyl acetate	1285	0.83%	
35.713	Unidentified	1292	0.05%	
35.808	trans-Pinocarvyl acetate	1293	0.04%	
38.271	Unidentified	1330	0.03%	
38.919	Unidentified	1340	0.01%	
39.188	alpha-Terpinyl acetate	1344	0.03%	
39.401	Citronellyl acetate	1347	0.04%	IFRA
41.096	Unidentified	1373	0.01%	
41.253	Geranyl acetate	1376	0.2%	
42.002	Unidentified	1387	0.02%	
43.252	Junipene	1406	0.06%	
43.897	beta-Caryophyllene	1417	0.08%	
46.149	Unidentified	1453	0.02%	
47.182	cis-Cadina-1(6),4-diene	1469	0.03%	
47.362	trans-Cadina-1(6),4-diene	1472	0.05%	
47.745	Germacrene D	1478	0.01%	
48.401	Unidentified	1489	0.01%	
48.688	Unidentified	1494	0.02%	
48.827	alpha-Murolene	1496	0.13%	
49.701	gamma-Cadinene	1510	0.15%	
50.012	delta-Cadinene	1516	0.59%	
50.197	Unidentified	1519	0.03%	
50.292	Unidentified	1520	0.03%	
50.858	Unidentified	1530	0.02%	
51.106	alpha-Cadinene	1534	0.03%	
51.346	trans-alpha-Bisabolene	1538	0.07%	



Ret. Time	Component	Ret. Idx.	Conc. %	
56.418	Unidentified	1625	0.01%	
57.218	tau-Cadinol	1639	0.07%	
57.324	epi-alpha-Murolol	1641	0.06%	
57.471	Unidentified	1644	0.02%	
57.969	alpha-Cadinol	1652	0.13%	
103.695	Unidentified	2670	0.01%	

Total Identified Compounds **99.29 %**

