



Essential Oil University

GC/MS Report

Item	Lot
Pine Needle (Scots Pine) EO <i>Pinus sylvestris</i>	3P
Date	Analyst
12/17/2024	Dr. Robert S. Pappas

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The analysis of this batch sample, Pine Needle (Scots Pine) EO, meets the expected chemical profile for authentic essential oil of *Pinus sylvestris*. 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:** Pine Needle (Scots Pine) EO**Botanical Name:** Pinus sylvestris**Lot Number:** 3P**Production Method:** Steam distilled**Sample Type:** EO - Single**Country of Origin:** Bulgaria**Analysis Date:** 12/17/2024**Manufacture Date:** December 2022

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

-29.88

1.47474

0.88249



Ret. Time	Component	Ret. Idx.	Conc. %	
5.839	Toluene	763	0.03%	IFRA
7.835	6,6-Dimethylhepta-2,4-diene	833	0.02%	
9.615	Unidentified	880	0.02%	
11.422	Hashishene	919	0.02%	
11.539	Tricyclene	922	0.06%	
11.690	alpha-Thujene	924	0.26%	
12.147	alpha-Pinene	933	47.08%	
12.885	alpha-Fenchene	946	0.01%	
12.978	Camphene	948	0.77%	
13.175	Thuja-2,4(10)diene	952	0.22%	
14.238	Sabinene	971	1.69%	
14.581	beta-Pinene	978	32.7%	
15.153	Myrcene	988	0.97%	
16.342	delta-3-Carene	1008	0.24%	
16.856	alpha-Terpinene	1016	0.01%	
17.332	para-Cymene	1024	0.51%	
17.636	Limonene	1028	4.13%	IFRA
17.733	beta-Phellandrene	1030	0.23%	
17.810	1,8-Cineole	1031	0.25%	
19.480	gamma-Terpinene	1057	0.07%	
20.253	trans-Sabinene hydrate	1069	0.05%	
20.389	Pinol	1071	0.02%	
21.275	Terpinolene	1084	0.18%	
21.593	para-Cymenene	1089	0.11%	
22.184	alpha-Pinene oxide	1098	0.56%	
22.284	Undecane	1100	0.08%	
22.866	Thujol	1108	0.34%	
23.536	endo-Fenchol	1118	0.04%	
23.705	Mentha-2,8-dienol isomer	1121	0.03%	
24.066	alpha-Campholenal	1126	0.15%	
24.468	cis-Limonene oxide	1132	0.04%	
24.845	Nopinone	1137	0.12%	
25.013	trans-Pinocarveol	1140	1.3%	
25.146	Epoxyterpinolene	1142	0.11%	
25.335	trans-Verbenol	1144	0.6%	
26.136	Sabina ketone	1156	0.05%	
26.365	trans-Pinocamphone	1159	0.07%	
26.486	Pinocarvone	1161	0.13%	
27.152	Borneol	1171	0.05%	
27.437	Isopinocamphone	1175	0.03%	



Ret. Time	Component	Ret. Idx.	Conc. %	
27.753	Terpinen-4-ol	1180	0.27%	
28.182	para-Cymen-7-ol	1186	0.24%	
28.289	cis-Pinocarveol	1187	0.06%	
28.786	Myrtenol	1195	1.44%	
29.092	Carveol isomer	1199	0.03%	
29.552	Verbenone	1206	0.17%	
29.672	Unidentified	1208	0.04%	
30.371	trans-Carveol	1218	0.13%	
30.889	Unidentified	1226	0.01%	
31.096	Thymol methyl ether	1229	0.03%	
31.276	cis-Carveol	1231	0.03%	
31.725	Unidentified	1238	0.02%	
32.075	Carvone	1243	0.04%	IFRA
32.581	Myrtenyl acetate	1250	0.05%	
32.775	Unidentified	1253	0.03%	
33.986	cis-alpha-Pinene glycol	1271	0.04%	
34.809	Bornyl acetate	1283	0.43%	
35.712	Thujol	1296	0.15%	
35.820	Perilla alcohol	1298	0.04%	
36.252	Unidentified + Unidentified	1305	0.19%	
36.514	Unidentified	1309	0.07%	
37.161	Myrtenal	1318	0.05%	
38.932	alpha-Terpinyol acetate	1345	0.03%	
39.152	alpha-Longipinene	1349	0.52%	
40.416	Isodene	1368	0.04%	
40.715	gamma-Himachalene	1373	0.04%	
41.347	Unidentified	1382	0.11%	
41.870	Sativene	1390	0.04%	
42.428	Alloaromadendrene	1399	0.03%	
42.983	Junipene	1408	1.35%	
43.626	beta-Caryophyllene	1418	0.17%	
45.871	alpha-Humulene	1454	0.03%	
49.124	beta-Bisabolene	1507	0.03%	
53.479	Caryophyllene oxide	1580	0.47%	
54.657	Longiborneol	1600	0.03%	
55.097	Humulene epoxide II	1608	0.06%	
63.713	Unidentified	1764	0.03%	
76.111	Unidentified	2012	0.05%	
77.903	Abietatriene	2050	0.02%	

Total Identified Compounds **99.39 %**

