



Essential Oil University

GC/MS Report

Item	Lot
Pine Needle (Scots Pine) EO <i>Pinus sylvestris</i>	4A
Date	Analyst
9/2/2025	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:** 4A**Production Method:** Steam distilled**Sample Type:** EO - Single**Country of Origin:** Bulgaria**Analysis Date:** 9/2/2025**Manufacture Date:** February 2025

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

-13.16

1.47179

0.86876



Ret. Time	Component	Ret. Idx.	Conc. %	
9.619	Santene	880	0.25%	
10.890	Unidentified	910	0.03%	
11.423	Hashishene	919	0.01%	
11.540	Tricyclene	922	0.56%	
11.690	alpha-Thujene	924	0.15%	
12.136	alpha-Pinene	933	43.8%	
12.411	Unidentified	938	0.01%	
12.882	alpha-Fenchene	946	0.06%	
12.978	Camphene	948	3.84%	
13.173	Thuja-2,4(10)diene	952	0.02%	
14.145	Cymene analogue	970	0.01%	
14.226	Sabinene	971	0.29%	
14.537	beta-Pinene	977	12.41%	
14.832	Camphene analogue	982	0.01%	
15.015	para-Menth-3-ene	986	0.01%	
15.146	Myrcene	988	1.11%	
15.759	alpha-Terpinene	999	0.01%	
15.823	Unidentified	1000	0.01%	
15.940	alpha-Phellandrene	1002	0.01%	
16.051	Pseudolimonene	1004	0.05%	
16.201	alpha-Phellandrene	1006	0.12%	
16.373	delta-3-Carene	1009	21.87%	
16.708	1,4-Cineole	1014	0.06%	
16.846	alpha-Terpinene	1016	0.32%	
17.003	ortho-Cymene	1019	0.01%	
17.323	para-Cymene	1024	0.31%	
17.620	Limonene	1028	2.24%	IFRA
17.721	beta-Phellandrene	1030	0.38%	
17.795	1,8-Cineole	1031	0.03%	
18.021	cis-beta-Ocimene	1034	0.01%	
18.692	trans-beta-Ocimene	1045	0.01%	
19.471	gamma-Terpinene	1057	0.05%	
21.263	Terpinolene	1084	2.64%	
21.595	para-Cymenene	1089	0.01%	
22.174	alpha-Pinene oxide	1098	0.02%	
22.851	Unidentified	1108	0.01%	
23.520	endo-Fenchol	1118	0.01%	
24.993	trans-Pinocarveol	1139	0.03%	
25.132	Epoxyterpinolene	1141	0.02%	
25.319	trans-Verbenol	1144	0.01%	



Ret. Time	Component	Ret. Idx.	Conc. %	
25.426	Camphor	1146	0.02%	
27.129	Borneol	1171	0.16%	
27.736	Terpinen-4-ol	1179	0.01%	
28.739	alpha-Terpineol	1194	0.13%	
31.091	Unidentified	1229	0%	
34.786	Bornyl acetate	1283	3.57%	
34.935	Isobornyl acetate	1285	0.02%	
39.117	alpha-Longipinene	1348	0.02%	
40.796	alpha-Copaene	1374	0.02%	
40.976	Geranyl acetate	1377	0.01%	
42.945	Junipene	1407	0.1%	
43.598	beta-Caryophyllene	1418	3.36%	
45.832	alpha-Humulene	1453	0.08%	
47.424	Germacrene D	1479	1.26%	
48.305	Bicyclogermacrene	1493	0.02%	
48.518	Unidentified	1496	0.01%	
49.090	beta-Bisabolene	1506	0.01%	
49.377	gamma-Cadinene	1511	0.01%	
49.693	delta-Cadinene	1516	0.34%	
53.433	Caryophyllene oxide	1579	0.01%	
59.456	alpha-Bisabolol	1685	0.01%	IFRA

Total Identified Compounds **99.91 %**



TIC
26,096,714

