



# Essential Oil University

## GC/MS Report

| Item                                                   | Lot                         |
|--------------------------------------------------------|-----------------------------|
| <b>Fir Needle EO Siberian</b><br><i>Abies sibirica</i> | <b>6B</b>                   |
| Date                                                   | Analyst                     |
| <b>6/16/2025</b>                                       | <b>Dr. Robert S. Pappas</b> |

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**The analysis of this batch sample, Fir Needle EO Siberian, meets the expected chemical profile for authentic essential oil of *Abies sibirica*. 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:** Fir Needle EO Siberian**Botanical Name:** Abies sibirica**Lot Number:** 6B**Production Method:** Steam distilled**Sample Type:** EO - Single**Country of Origin:** Russia**Analysis Date:** 6/16/2025**Manufacture Date:** March 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

-34.60

1.47049

0.90507



| Ret. Time | Component                | Ret. Idx. | Conc. % |      |
|-----------|--------------------------|-----------|---------|------|
| 5.858     | Toluene                  | 764       | 0.01%   | IFRA |
| 9.626     | Santene                  | 880       | 2.26%   |      |
| 10.623    | Unidentified             | 905       | 0.03%   |      |
| 11.547    | Tricyclene               | 922       | 2.14%   |      |
| 11.694    | alpha-Thujene            | 924       | 0.09%   |      |
| 12.110    | alpha-Pinene             | 932       | 11.41%  |      |
| 12.905    | alpha-Fenchene           | 947       | 0.02%   |      |
| 13.013    | Camphene                 | 949       | 20.26%  |      |
| 13.183    | Thuja-2,4(10)-diene      | 952       | 0.01%   |      |
| 14.148    | Cymene analogue          | 970       | 0.04%   |      |
| 14.231    | Sabinene                 | 971       | 0.01%   |      |
| 14.528    | beta-Pinene              | 977       | 1.91%   |      |
| 15.153    | Myrcene                  | 988       | 0.55%   |      |
| 16.206    | alpha-Phellandrene       | 1006      | 0.2%    |      |
| 16.373    | delta-3-Carene           | 1009      | 12.71%  |      |
| 16.854    | alpha-Terpinene          | 1016      | 0.12%   |      |
| 17.098    | Unidentified             | 1020      | 0.01%   |      |
| 17.335    | para-Cymene              | 1024      | 0.14%   |      |
| 17.640    | Limonene                 | 1028      | 4.52%   | IFRA |
| 17.741    | beta-Phellandrene        | 1030      | 3.32%   |      |
| 19.479    | gamma-Terpinene          | 1057      | 0.17%   |      |
| 21.003    | Isoterpinolene           | 1080      | 0.06%   |      |
| 21.265    | Terpinolene              | 1084      | 1.18%   |      |
| 21.593    | para-Cymenene            | 1089      | 0.04%   |      |
| 21.939    | Unidentified             | 1095      | 0.04%   |      |
| 22.217    | Unidentified             | 1099      | 0.04%   |      |
| 23.532    | endo-Fenchol             | 1118      | 0.02%   |      |
| 23.887    | cis-para-Menth-2-en-1-ol | 1123      | 0.01%   |      |
| 24.057    | alpha-Campholenal        | 1126      | 0.02%   |      |
| 24.995    | trans-Pinocarveol        | 1139      | 0.02%   |      |
| 25.134    | Epoxyterpinolene         | 1142      | 0.02%   |      |
| 25.430    | Camphor                  | 1146      | 0.2%    |      |
| 25.980    | trans-beta-Terpineol     | 1154      | 0.09%   |      |
| 26.511    | alpha-Phellandrene-8-ol  | 1162      | 0.03%   |      |
| 27.147    | Borneol                  | 1171      | 1.85%   |      |
| 27.414    | Unidentified             | 1175      | 0.02%   |      |
| 27.609    | 1,8-menthadien-4-ol      | 1178      | 0%      |      |
| 27.741    | Terpinen-4-ol            | 1179      | 0.12%   |      |
| 28.172    | para-Cymen-8-ol          | 1186      | 0.06%   |      |
| 28.747    | alpha-Terpineol          | 1194      | 0.23%   |      |



| Ret. Time | Component            | Ret. Idx. | Conc. % |      |
|-----------|----------------------|-----------|---------|------|
| 28.865    | Unidentified         | 1196      | 0.01%   |      |
| 29.545    | Unidentified         | 1206      | 0.02%   |      |
| 29.670    | Unidentified         | 1208      | 0.01%   |      |
| 29.774    | Unidentified         | 1209      | 0.01%   |      |
| 30.272    | endo-Fenchyl acetate | 1216      | 0.02%   |      |
| 30.762    | Unidentified         | 1224      | 0.01%   |      |
| 31.087    | Thymol methyl ether  | 1228      | 0.04%   |      |
| 31.611    | Unidentified         | 1236      | 0.02%   |      |
| 33.602    | Unidentified         | 1265      | 0.01%   |      |
| 34.358    | Phellandral          | 1277      | 0.01%   |      |
| 34.566    | Unidentified         | 1280      | 0.01%   |      |
| 34.874    | Bornyl acetate       | 1284      | 31.74%  |      |
| 34.988    | Isobornyl acetate    | 1286      | 0.13%   |      |
| 35.385    | 2-Undecanone         | 1292      | 0.04%   |      |
| 36.321    | Unidentified         | 1306      | 0.02%   |      |
| 36.726    | Unidentified         | 1312      | 0.02%   |      |
| 38.003    | Unidentified         | 1331      | 0.01%   |      |
| 38.636    | Unidentified         | 1341      | 0.01%   |      |
| 39.125    | alpha-Longipinene    | 1348      | 0.03%   |      |
| 39.699    | Neryl acetate        | 1357      | 0.03%   |      |
| 40.381    | alpha-Ylangene       | 1368      | 0.02%   |      |
| 40.977    | Geranyl acetate      | 1377      | 0.22%   |      |
| 41.833    | Sativene             | 1390      | 0.01%   |      |
| 42.552    | Sibirene             | 1401      | 0.04%   |      |
| 42.952    | Longifolene          | 1407      | 0.11%   | IFRA |
| 43.029    | Dodecanal            | 1408      | 0.16%   |      |
| 43.595    | beta-Caryophyllene   | 1418      | 1.41%   |      |
| 45.497    | alpha-Himachalene    | 1448      | 0.05%   |      |
| 45.838    | alpha-Humulene       | 1453      | 0.81%   |      |
| 47.075    | Unidentified         | 1473      | 0.02%   |      |
| 47.279    | gamma-Himachalene    | 1477      | 0.03%   |      |
| 47.448    | Unidentified         | 1479      | 0.02%   |      |
| 47.542    | Unidentified         | 1481      | 0.03%   |      |
| 47.797    | Unidentified         | 1485      | 0.02%   |      |
| 47.916    | beta-Selinene        | 1487      | 0.01%   |      |
| 48.268    | beta-Alaskene        | 1492      | 0.04%   |      |
| 48.350    | Unidentified         | 1494      | 0.01%   |      |
| 48.601    | beta-Himachalene     | 1498      | 0.04%   |      |
| 49.091    | beta-Bisabolene      | 1506      | 0.16%   |      |
| 49.265    | cis-gamma-Bisabolene | 1509      | 0.05%   |      |



| Ret. Time | Component              | Ret. Idx. | Conc. % |      |
|-----------|------------------------|-----------|---------|------|
| 49.425    | Unidentified           | 1512      | 0.01%   |      |
| 49.696    | delta-Cadinene         | 1516      | 0.02%   |      |
| 50.212    | trans-gamma-Bisabolene | 1525      | 0.08%   |      |
| 51.039    | trans-alpha-Bisabolene | 1539      | 0.01%   |      |
| 52.237    | trans-Nerolidol        | 1559      | 0.01%   |      |
| 53.440    | Caryophyllene oxide    | 1579      | 0.05%   |      |
| 54.627    | Unidentified           | 1599      | 0.01%   |      |
| 55.060    | Humulene epoxide II    | 1607      | 0.03%   |      |
| 55.828    | Unidentified           | 1621      | 0.03%   |      |
| 58.813    | Unidentified           | 1674      | 0.02%   |      |
| 59.334    | epi-alpha-Bisabolol    | 1683      | 0.06%   | IFRA |
| 59.460    | alpha-Bisabolol        | 1685      | 0.16%   | IFRA |
| 75.060    | Manool oxide           | 1990      | 0.03%   |      |
| 76.061    | Unidentified           | 2011      | 0.02%   |      |
| 77.837    | Manool                 | 2049      | 0.01%   |      |

Total Identified Compounds **99.5 %**

