

Sample Information

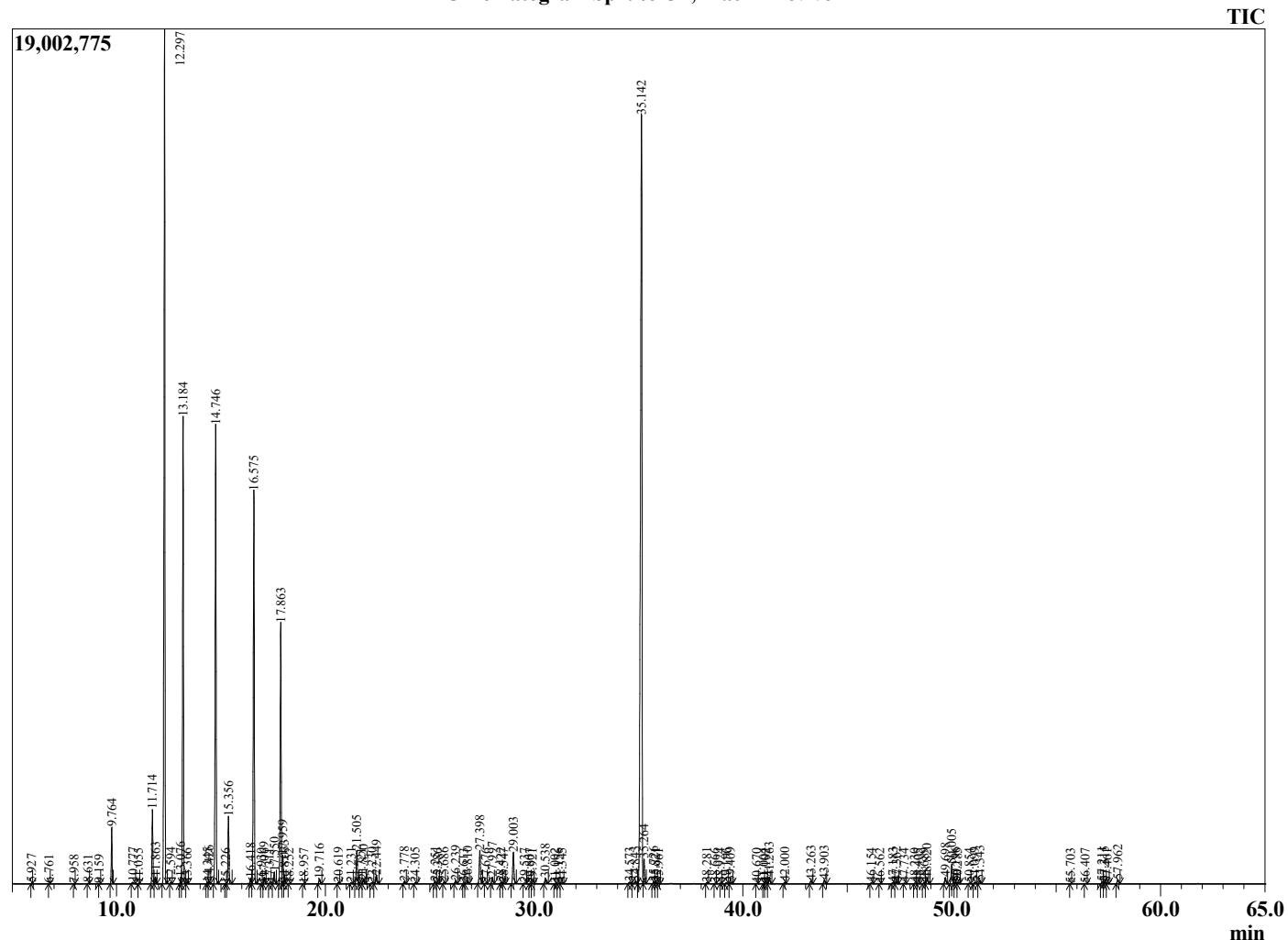
Analyzed by : Dr. Robert S. Pappas
 Analyzed : 8/5/2022 9:13:25 PM
 Sample Type : Essential Oil
 Sample Name : Spruce Oil, Black - Revive
 Sample ID : 6H
 Injection Volume : 0.10
 Instrument ID: : GC-4



Peak Report TIC

R.Time	Name	Area%
5.927	Toluene	0.01
6.761	Hexanal	0.00
7.958	2,6-Dimethyl-2,4-heptadiene	0.00
8.631	cis-3-Hexenol	0.01
9.159	Hexanol	0.01
9.764	Santene	1.05
10.777	Unidentified	0.05
11.055	(4Z)-2,6-Dimethyl-4-octene	0.01
11.714	Tricyclene	1.55
11.863	alpha-Thujene	0.15
12.297	alpha-Pinene	20.01
12.594	Unidentified	0.03
13.076	alpha-Fenchene	0.15
13.184	Camphene	10.53
13.366	Thuja-2,4(10)-diene	0.02
14.345	Cymene analogue	0.03
14.426	Sabinene	0.07
14.746	beta-Pinene	10.94
15.226	para-Menth-3-ene	0.01
15.356	Myrcene	1.58
16.418	alpha-Phellandrene	0.14
16.575	delta-3-Carene	9.63
16.930	1,4-Cineole	0.01
17.069	alpha-Terpinene	0.15
17.311	Unidentified	0.01
17.550	para-Cymene	0.30
17.863	Limonene	6.57
17.959	beta-Phellandrene	0.69
18.033	1,8-Cineole	0.18
18.252	cis-beta-Ocimene	0.01
18.957	trans-beta-Ocimene	0.01
19.716	gamma-Terpinene	0.13
20.619	Pinol	0.03
21.231	Isoterpinolene	0.04
21.505	Terpinolene	0.88
21.721	Fenchone	0.02
21.820	para-Cymenene	0.11
22.230	alpha-Campholenal analogue	0.04
22.449	Linalool	0.25
23.778	endo-Fenchol	0.06
24.305	alpha-Campholenal	0.03
25.251	trans-Pinocarveol	0.07
25.386	Epoxyterpinolene	0.02
25.686	Camphor	0.05
26.239	Camphene hydrate	0.09
26.613	trans-Pinocamphone	0.01
26.810	Isoborneol	0.06
27.398	Borneol	0.94
27.676	cis-Pinocamphone	0.01
27.997	Terpinen-4-ol	0.19
28.422	para-Cymen-8-ol	0.04
28.547	Unidentified	0.02
29.003	alpha-Terpineol	0.95
29.537	Bornyl formate	0.02
29.807	Verbenone	0.01
29.921	Unidentified	0.01
30.538	Fenchyl acetate	0.16
31.002	Thymol methyl ether	0.01
31.156	Citronellol	0.02
31.345	Carvacryl methyl ether	0.03
34.573	Chrysanthenyl acetate analogue	0.06
34.843	Unidentified	0.08

Chromatogram Spruce Oil, Black - Revive



Comments:

The analysis of this Black Spruce batch sample 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.

R.Time	Name	Area%
35.142	Bornyl acetate	28.56
35.264	Isobornyl acetate	0.65
35.726	Unidentified	0.06
35.821	trans-Pinocarvyl acetate	0.04
35.961	Unidentified	0.01
38.281	gamma-Terpinyl acetate	0.03
38.666	Unidentified	0.01
38.924	Unidentified	0.00
39.196	alpha-Terpinyl acetate	0.03
39.409	Citronellyl acetate	0.05
40.670	Unidentified	0.01
41.004	Unidentified	0.01
41.102	alpha-Copaene	0.01
41.263	Geranyl acetate	0.19
42.000	beta-Elemene	0.04
43.263	Longifolene	0.09
43.903	trans-beta-Caryophyllene	0.11
46.154	alpha-Humulene	0.03
46.562	cis-Muurola-4(14),5-diene	0.01
47.183	trans-Cadina-1(6),4-diene	0.04
47.362	Murrola-4(14),5-diene	0.07
47.734	Germacrene D	0.02
48.230	beta-Selinene	0.01
48.405	gamma-Amorphene	0.02
48.689	epi-Zonarene	0.04
48.820	alpha-Murolene	0.17
49.698	gamma-Cadinene	0.19
50.005	delta-Cadinene	0.65
50.196	trans-Calamenene	0.06
50.285	Zonarene	0.03
50.854	trans-Cadina-1,4-diene	0.02
51.099	alpha-Cadinene	0.04
51.343	trans-alpha-Bisabolene	0.09
55.703	1,10-di-epi-Cubenol	0.00
56.407	Epicubenol	0.01
57.211	epi-alpha-Cadinol	0.07
57.315	epi-alpha-Murolol	0.07
57.461	alpha-Murolol	0.02
57.962	Cadin-4-en-10-ol	0.13
		100.00