



Essential Validation Services



Sample:

Client: | Nature's Fusions
Sample: | Mandarin (Citrus reticulata)
Batch # | NF-MANS-18-A
Cas Number | 8008-31-9
Type: | Essential Oil

Conclusion:

- No adulterants, diluents, or contaminants were detected via this method.
- This oil meets the expected profile for genuine essential oil of Mandarin (Citrus reticulata).



X 

Validated By:

Essential Validation Services

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Summary of Analyses

A fresh sample of Mandarin (Citrus reticulata) Essential Oil (10 uL in .5to.5 mL Hexane + ETOH) was prepared and analyzed via split injection GC/EI-MS.

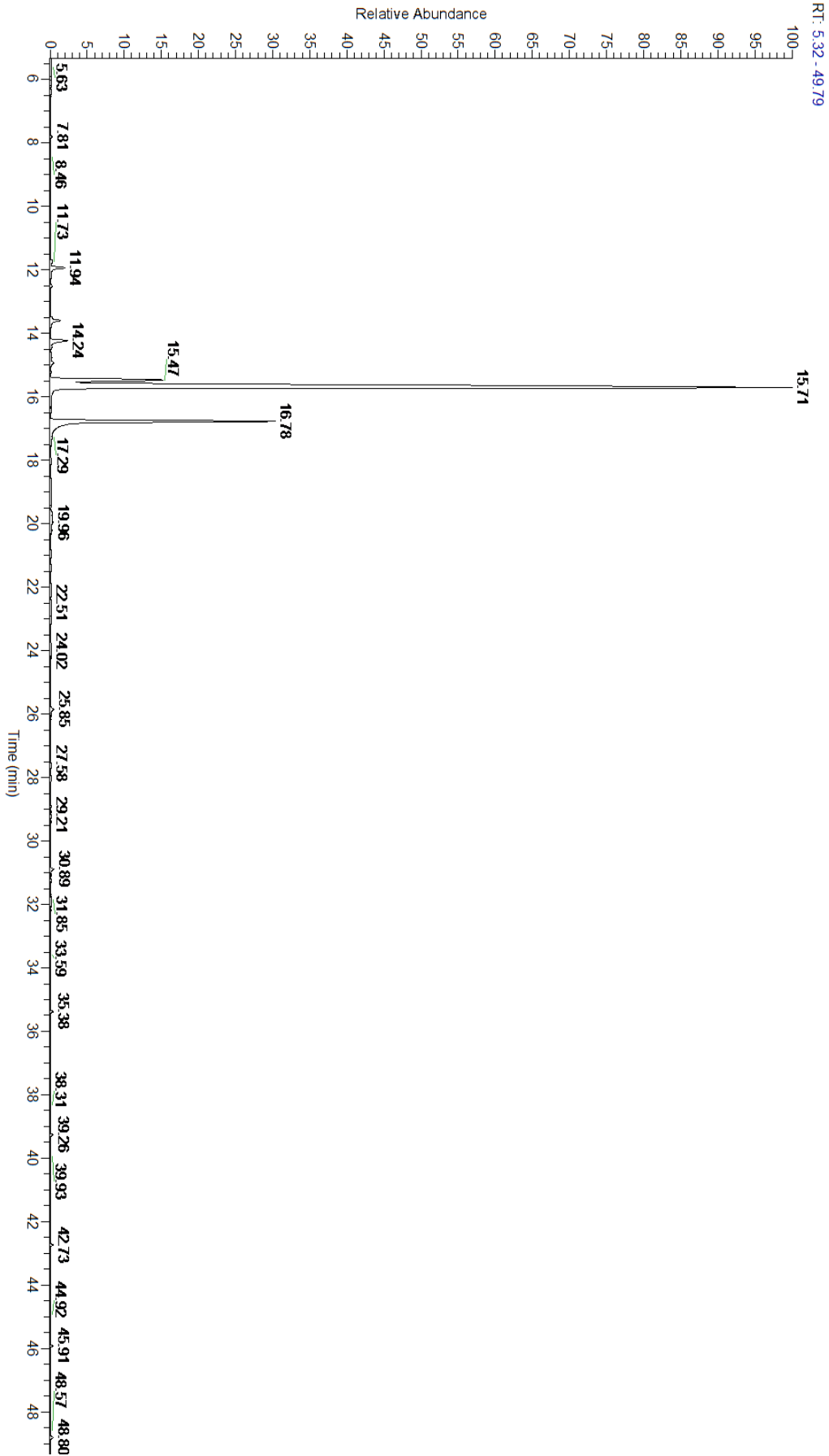
Main Compounds	Percentages
Limonene	77.15%
gamma-Terpinene	16.42%
Myrcene	1.79%
alpha-Pinene	0.66%
cis-Limonene oxide	0.40%

Monoterpenes	Sesquiterpenes	Monoterpenols	Sesquiterpenols	Ketones
97.12%	0.30%	0.47%	0.01%	0.07%
Esters	Ethers	Aldehydes	Phenols	Other
0.01%	0.62%	0.24%	0.00%	1.16%



- Monoterpenes
- Sesquiterpenes
- Monoterpenols
- Sesquiterpenols
- Ketones
- Esters
- Ethers
- Phenols
- Other

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Total Percentage		98.84%			
Peak Number	RT	Area %	Compound Name	RI	Chemical Family
1	11.39	0.06%	alpha-Thujene	927.80	Monoterpene
2	11.62	0.66%	alpha-Pinene	936.10	Monoterpene
3	12.19	0.01%	Camphene	950.30	Monoterpene
4	13.18	0.22%	Sabinene	973.00	Monoterpene
5	13.26	0.27%	beta-Pinene	974.00	Monoterpene
6	13.87	1.79%	Myrcene	989.20	Monoterpene
7	14.38	0.08%	Octanal	998.00	Aliphatic Aldehyde
8	14.60	0.10%	delta-3-Carene	1008.00	Monoterpene
9	15.17	0.05%	para-Cymene	1024.30	Monoterpene
10	15.78	77.15%	Limonene	1029.50	Monoterpene
11	16.12	0.08%	(E)-beta-Ocimene	1047.70	Monoterpene
12	16.66	16.42%	gamma-Terpinene	1054.00	Monoterpene
13	16.99	0.20%	p-Mentha-3,8-diene	1074.00	Monoterpene
14	17.59	0.11%	Terpinolene	1092.10	Monoterpene
15	17.96	0.27%	Linalool	1099.00	Monoterpenol
16	18.78	0.02%	trans-p-Mentha-2,8-dienol	1123.10	Monoterpenol
17	19.19	0.40%	cis-Limonene oxide	1136.00	Monoterpene Ether
18	19.35	0.22%	trans-Limonene oxide	1138.10	Monoterpene Ether
19	19.89	0.01%	Citronellal	1154.50	Monoterpene Aldehyde
20	20.81	0.02%	Terpinen-4-ol	1180.57	Monoterpenol
21	21.24	0.05%	alpha-Terpineol	1191.71	Monoterpenol
22	21.41	0.05%	Myrtenol	1198.00	Monoterpenol
23	21.68	0.08%	Decanal	1206.57	Aliphatic Aldehyde
24	22.23	0.03%	trans-Carveol	1223.14	Monoterpenol
25	22.61	0.03%	cis-Carveol	1232.25	Monoterpenol
26	23.03	0.07%	Carvone	1248.14	Monoterpene Ketone
27	23.32	0.01%	Linalyl acetate	1263.80	Monoterpene Ester
28	24.05	0.04%	Perilla aldehyde	1281.00	Monoterpene Aldehyde
29	27.20	0.06%	alpha-Copaene	1379.00	Sesquiterpene
30	27.60	0.06%	beta-Cubebene	1390.50	Sesquiterpene
31	28.53	0.01%	beta-Caryophyllene	1427.14	Sesquiterpene
32	28.80	0.02%	gamma-Elemene	1434.00	Sesquiterpene
33	29.50	0.03%	E-beta-Farnesene	1456.29	Sesquiterpene
34	30.63	0.02%	Valencene	1504.00	Sesquiterpene
35	30.90	0.04%	(E,E)-alpha-Farnesene	1508.14	Sesquiterpene
36	31.41	0.06%	delta-Cadinene	1524.14	Sesquiterpene
37	32.96	0.01%	Spathulenol	1587.00	Sesquiterpenol
38	33.13	Co-Eluting	Caryophyllene oxide	1594.86	Sesquiterpene Ether
39	37.37	0.03%	alpha-Sinensal	1751.00	Sesquiterpene Aldehyde