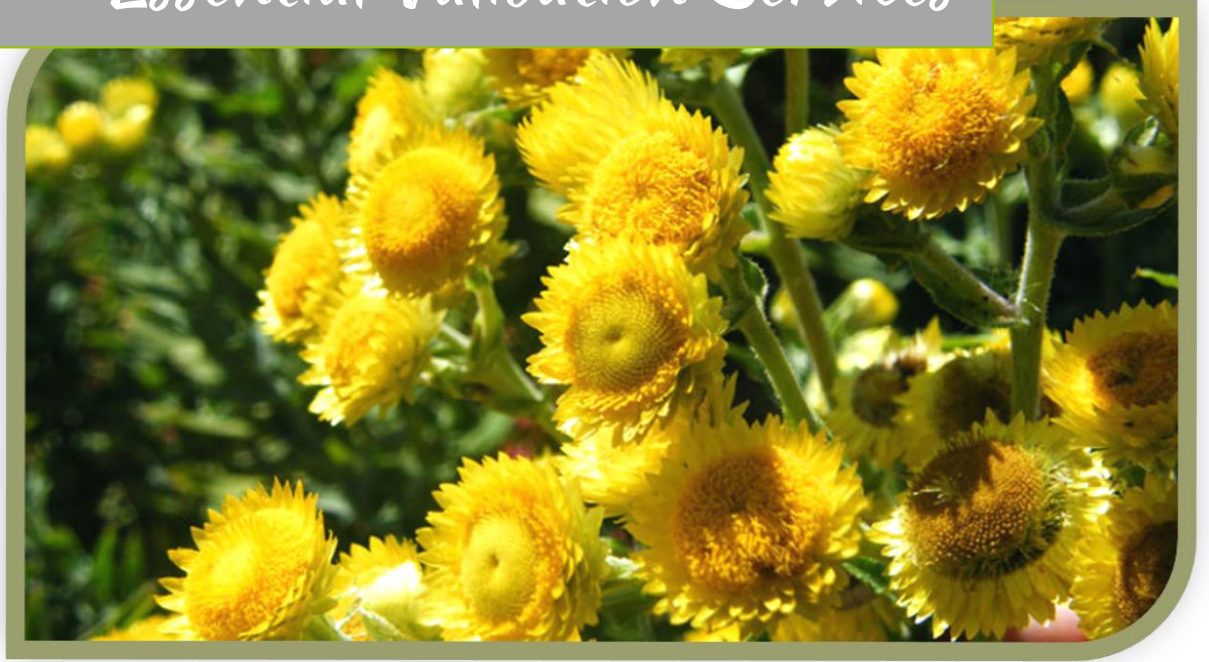




Essential Validation Services





Sample:

Client: | Appalachian Valley Natural Products
Sample: | Helichrysum Italicum (Helichrysum Italicum)
Batch # | AVNP-Hel-8-6-2018
CAS Number | 90045-56-0
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 Helichrysum Italicum (Helichrysum Italicum).



X

Validated By:

Essential Validation Services

747 SW 2nd Ave, Gainesville, FL 32601

Phone: 317-361-5044 E-mail: Adam@essentialvalidationservices.com

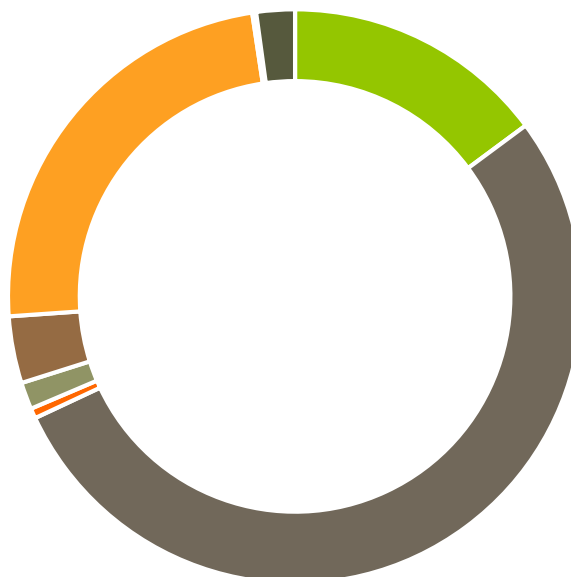
Summary of Analyses

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

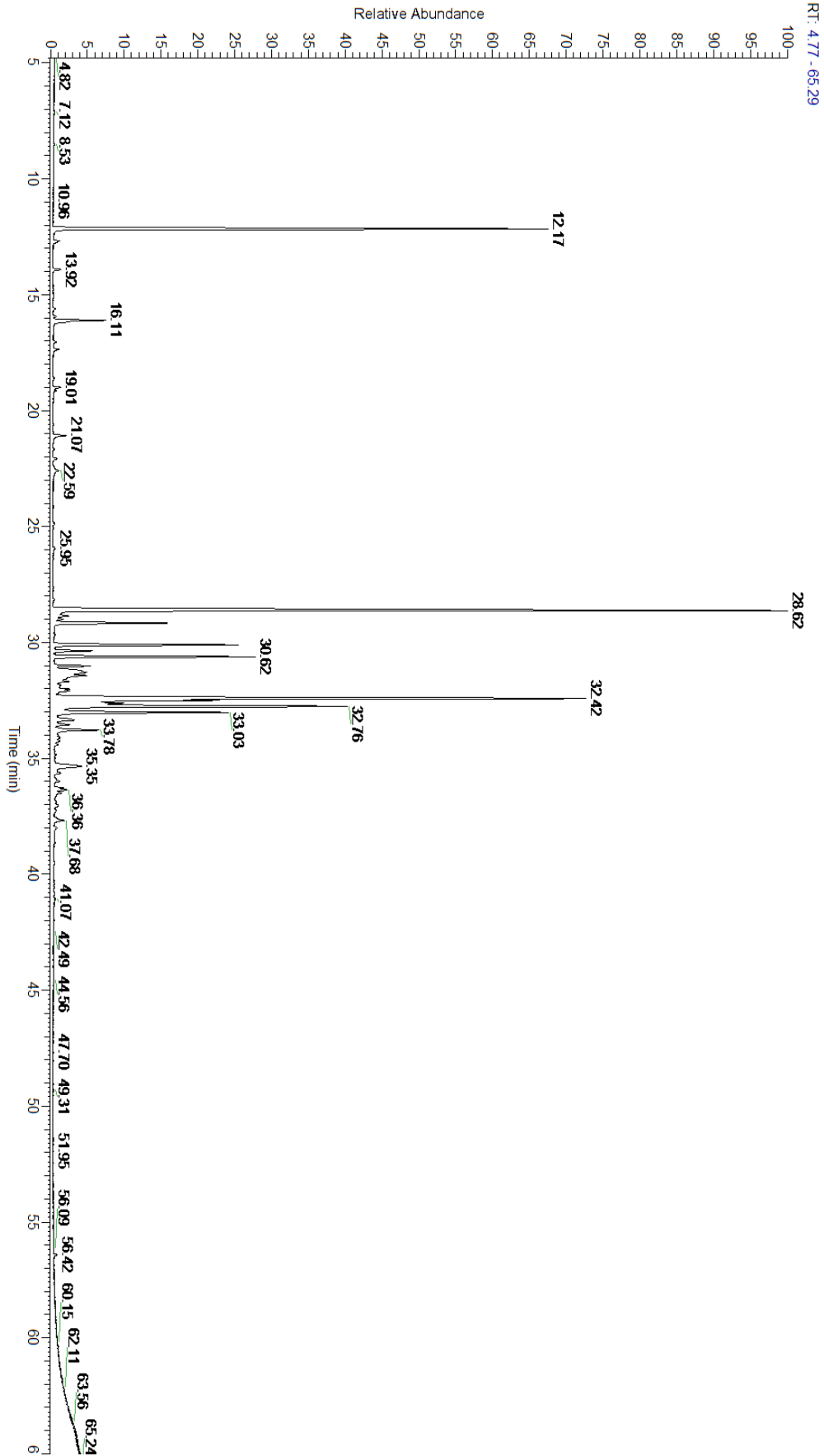


Main Compounds	Percentages
Neryl acetate	21.95%
gamma-Curcumene	16.66%
alpha-Pinene	12.62%
beta-Selinene	8.35%
beta-Caryophyllene	4.65%
Italicene	4.56%
alpha-Selinene	4.40%
gamma-Murolene	3.55%
alpha-Copaene	2.93%
ar-Curcumene (Co-Eluting)	2.18%
Italidione I	2.17%
Limonene (Co-Eluting)	1.53%
Italidione III isomer II	1.49%

Monoterpenes	Sesquiterpenes	Monoterpenols	Sesquiterpenols	Ketones
14.85%	53.18%	0.57%	1.52%	3.77%
Esters	Ethers	Aldehydes	Phenols	Other
23.72%	0.22%	0.00%	0.00%	2.17%



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





Total Percentage		97.83%			
Peak Number	RT	Area %	Compound Name	RI	Chemical Family
1	8.53	0.01%	4-Methyl-3-hexanone	828.50	Aliphatic Ketone
2	12.17	12.62%	alpha-Pinene	936.10	Monoterpene
3	12.68	0.20%	Camphene	950.30	Monoterpene
4	13.92	0.19%	beta-Pinene	974.00	Monoterpene
5	15.03	0.01%	Isobutyl 2-methylbutyrate	991.50	Aliphatic Ester
6	15.61	0.06%	alpha-Terpinene	1014.00	Monoterpene
7	15.94	0.08%	para-Cymene	1024.30	Monoterpene
8	16.11	1.53%	Limonene	1029.50	Monoterpene
9	16.12	Co-Eluting	1,8-Cineole	1031.80	Monoterpene Ether
10	17.04	0.07%	Isobutyl angelate	1053.75	Aliphatic Ester
11	17.36	0.14%	gamma-Terpinene	1054.00	Monoterpene
12	18.60	0.03%	Terpinolene	1092.10	Monoterpene
13	19.01	0.21%	Linalool	1099.00	Monoterpenol
14	19.14	0.08%	2-Methylbutyl 2-methylbutyrate	1102.10	Aliphatic Ester
15	19.59	0.01%	Isoamyl tiglate	1152.50	Aliphatic Ester
16	21.07	0.37%	Isoamyl angelate	1154.75	Aliphatic Ester
17	22.07	0.10%	Terpinen-4-ol	1180.57	Monoterpenol
18	22.59	0.24%	alpha-Terpineol	1191.71	Monoterpenol
19	24.84	0.02%	Geraniol	1255.29	Monoterpenol
20	28.14	0.05%	alpha-Terpinyl acetate	1353.00	Monoterpene Ether
21	28.62	21.95%	Neryl acetate	1362.90	Monoterpene Ester
22	28.86	0.47%	Cyclosativene	1370.50	Sesquiterpene
23	28.99	0.27%	alpha-Ylangene	1371.33	Sesquiterpene
24	29.17	2.93%	alpha-Copaene	1379.00	Sesquiterpene
25	29.66	0.02%	beta-Elemene	1389.20	Sesquiterpene
26	30.11	4.56%	Italicene	1401.10	Sesquiterpene
27	30.36	0.89%	cis-alpha-Bergamotene	1411.50	Sesquiterpene
28	30.62	4.65%	beta-Caryophyllene	1427.14	Sesquiterpene
29	31.01	0.80%	trans-alpha-Bergamotene	1435.00	Sesquiterpene
30	31.29	2.17%	Italidione I	1444.50	beta-Diketone
31	31.43	1.23%	Neryl propionate	1448.50	Monoterpene Ester
32	31.57	0.30%	(Z)-beta-Farnesene	1453.40	Sesquiterpene
33	31.69	0.40%	alpha-Humulene	1461.43	Sesquiterpene
34	31.86	0.18%	alpha-Acoradiene	1463.00	Sesquiterpene
35	31.92	0.08%	beta-Acoradiene	1475.00	Sesquiterpene
36	32.42	16.66%	gamma-Curcumene	1476.00	Sesquiterpene
37	32.50	3.55%	gamma-Muurolene	1478.86	Sesquiterpene
38	32.62	2.18%	ar-Curcumene	1480.50	Sesquiterpene
39	32.62	Co-Eluting	Italidione II	1481.50	beta-Diketone
40	32.76	8.35%	beta-Selinene	1487.57	Sesquiterpene
41	33.03	4.40%	alpha-Selinene	1492.50	Sesquiterpene
42	33.35	0.69%	(E,E)-alpha-Farnesene	1508.14	Sesquiterpene
43	33.55	0.36%	gamma-Cadinene	1515.29	Sesquiterpene



44	33.78	1.26%	delta-Cadinene	1524.14	Sesquiterpene
45	34.26	0.18%	alpha-Cadinene	1537.86	Sesquiterpene
46	34.85	0.05%	(E)-Nerolidol	1567.00	Sesquiterpenol
47	34.99	0.01%	Italidione III	1571.00	beta-Diketone
48	35.17	0.02%	Italidione III isomer	1573.50	beta-Diketone
49	35.35	1.49%	Italidione III isomer II	1582.00	beta-Diketone
50	35.56	0.07%	Italidione III isomer III	1588.00	beta-Diketone
51	35.63	0.17%	Caryophyllene oxide	1594.86	Sesquiterpene Ether
52	35.99	0.14%	gamma-Eudesmol	1608.00	Sesquiterpenol
53	36.28	0.20%	10-epi-gamma-Eudesmol	1620.00	Sesquiterpenol
54	36.36	0.36%	1-epi-Cubenol	1628.00	Sesquiterpenol
55	36.50	0.24%	beta-Eudesmol	1650.75	Sesquiterpenol
56	37.13	0.01%	alpha-Eudesmol	1652.86	Sesquiterpenol
57	37.68	0.41%	11-Selinenol-4, alpha	1655.50	Sesquiterpenol
58	38.01	0.11%	Bulnesol	1667.60	Sesquiterpenol

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