



Essential Validation Services



Sample:

Client: | 21 Drops
Sample: | Cardamom (Elettaria cardamomum)
Batch # | 0317/1
Cas Number | 8000-66-6
Type: | Essential Oil

Conclusion:

- No adulterants, diluents, or contaminants were detected via this method.



X *Adam Christen*

Validated By:

Essential Validation Services

747 SW 2nd Ave, Gainesville, FL 32601

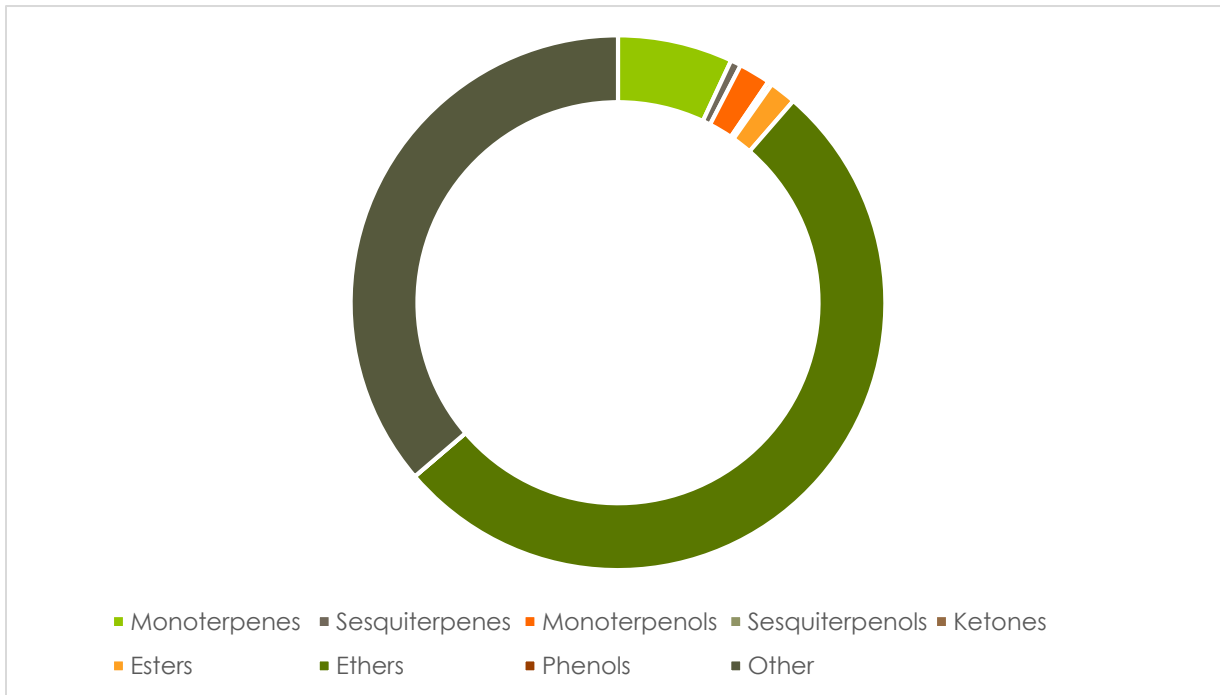
Phone: 317-361-5044 E-mail: Adam@essentialvalidationservices.com

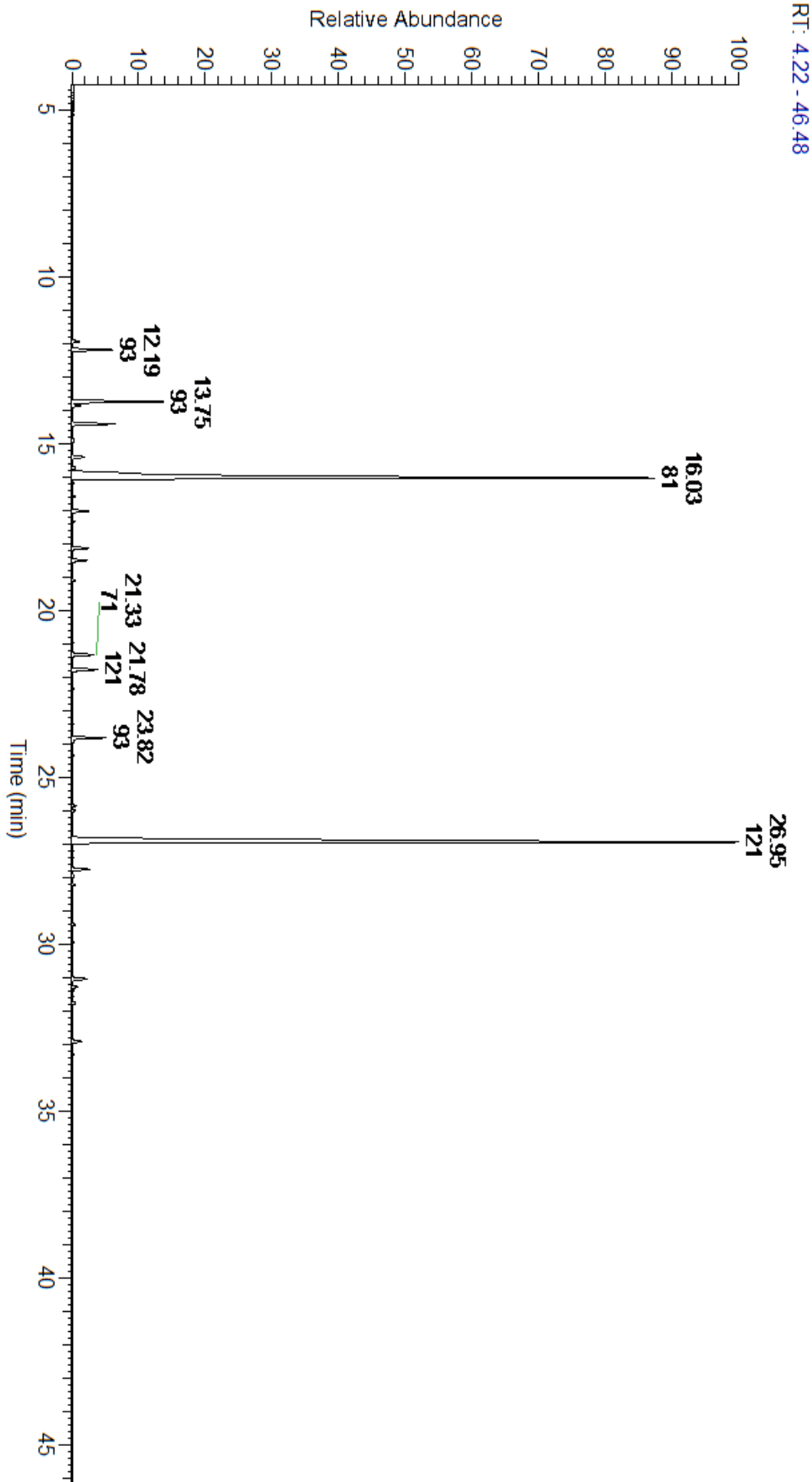
Summary of Analyses

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

Main Compounds	Percentages
alpha-Terpinyl acetate	42.90%
1,8-Cineole	38.78%
Sabinene	4.16%
alpha-Pinene	1.80%
Myrcene	1.77%
Linalyl acetate	1.47%
alpha-Terpineol	1.23%
Terpinen-4-ol	0.99%
gamma-Terpinene	0.76%
Geranyl acetate	0.75%
Terpinolene	0.74%
Linalool	0.67%
beta-Selinene	0.65%

Monoterpenes	Sesquiterpenes	Monoterpenols	Sesquiterpenols	Ketones
10.85%	0.99%	2.99%	0.41%	0.00%
Esters	Ethers	Aldehydes	Phenols	Other
2.52%	81.68%	0.00%	0.00%	0.56%





ESSENTIAL VALIDATION SERVICES | 747 SW 2ND AVE GAINESVILLE, FLORIDA 32601 | 317-361-5044

Total Percentage		99.44%			
Peak Number	RT	Area %	Compound Name	RI	Chemical Family
1	11.93	0.30%	alpha-Thujene	927.80	Monoterpene
2	12.19	1.80%	alpha-Pinene	936.10	Monoterpene
3	13.75	4.16%	Sabinene	973.00	Monoterpene
4	13.86	0.36%	beta-Pinene	974.00	Monoterpene
5	14.41	1.77%	Myrcene	989.20	Monoterpene
6	14.93	0.10%	alpha-Phellandrene	1002.00	Monoterpene
7	15.40	0.56%	alpha-Terpinene	1014.00	Monoterpene
8	15.72	0.17%	para-Cymene	1024.30	Monoterpene
9	16.03	38.78%	1,8-Cineole	1031.80	Monoterpene Ether
10	16.03	Co-Eluting	Limonene	1029.50	Monoterpene
11	16.21	0.03%	(Z)-beta-Ocimene	1037.80	Monoterpene
12	16.59	0.10%	(E)-beta-Ocimene	1047.70	Monoterpene
13	17.02	0.76%	gamma-Terpinene	1054.00	Monoterpene
14	17.34	0.07%	cis-Sabinene hydrate	1072.00	Monoterpenol
15	18.14	0.74%	Terpinolene	1092.10	Monoterpene
16	18.50	0.67%	Linalool	1099.00	Monoterpenol
17	20.96	0.03%	delta-Terpineol	1166.00	Monoterpenol
18	21.33	0.99%	Terpinen-4-ol	1180.57	Monoterpenol
19	21.78	1.23%	alpha-Terpineol	1191.71	Monoterpenol
20	22.36	0.04%	Octyl acetate	1211.00	Aliphatic Ester
21	23.82	1.47%	Linalyl acetate	1263.80	Monoterpene Ester
22	25.86	0.14%	delta-Terpinyl acetate	1316.50	Monoterpene Ester
23	26.00	0.12%	Methyl geranate	1323.80	Monoterpene Ester
24	26.95	42.90%	alpha-Terpinyl acetate	1353.00	Monoterpene Ether
25	27.77	0.75%	Geranyl acetate	1378.50	Monoterpene Ester
26	31.05	0.65%	beta-Selinene	1487.57	Sesquiterpene
27	31.29	0.21%	alpha-Selinene	1492.50	Sesquiterpene
28	31.77	0.13%	gamma-Cadinene	1515.29	Sesquiterpene
29	32.92	0.41%	(E)-Nerolidol	1567.00	Sesquiterpenol