



Essential Oil University

GC/MS Report

Item	Lot
Cardamom EO 1Kg <i>Elettaria Cardamomum</i>	1C
Date	Analyst
5/1/2025	Dr. Robert S. Pappas

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The analysis of this batch sample, Cardamom EO 1Kg, meets the expected chemical profile for authentic essential oil of *Elettaria Cardamomum*. 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:** Cardamom EO 1Kg**Botanical Name:** Elettaria Cardamomum**Lot Number:** 1C**Production Method:** Hydrodistillation**Sample Type:** EO - Single**Country of Origin:** Guatemala**Analysis Date:** 5/1/2025**Manufacture Date:** October 2024

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

+11.92

1.46348

0.93162



Ret. Time	Component	Ret. Idx.	Conc. %	
11.661	alpha-Thujene	924	0.09%	
12.062	alpha-Pinene	931	1.6%	
12.946	Camphene	948	0.03%	
14.202	Sabinene	971	4.3%	
14.494	beta-Pinene	976	0.83%	
14.850	6-Methyl hept-5-en-2-one	983	0.01%	
15.120	Myrcene	988	0.32%	
15.983	Octanal	1003	0.01%	
16.172	alpha-Phellandrene	1006	0.01%	
16.821	alpha-Terpinene	1016	0.04%	
17.305	para-Cymene	1023	0.18%	
17.613	Limonene	1028	2.81%	IFRA
17.705	beta-Phellandrene	1029	0.02%	
17.826	1,8-Cineole	1031	30.99%	
17.997	cis-beta-Ocimene	1034	0.01%	
18.676	trans-beta-Ocimene	1044	0.02%	
19.451	gamma-Terpinene	1056	0.25%	
20.220	trans-Sabinene hydrate	1068	0.17%	
21.240	Terpinolene	1084	0.04%	
21.285	trans-Linalool oxide (furanoid)	1085	0.01%	
22.209	Linalool	1099	4.96%	IFRA
23.119	trans-4,8-Dimethyl-nona-1,3,7-triene	1112	0.01%	
23.871	cis-para-Menth-2-en-1-ol	1123	0.01%	
25.408	Camphor	1145	0.05%	
27.009	delta-Terpineol	1169	0.02%	
27.111	Borneol	1170	0.01%	
27.724	Terpinen-4-ol	1179	1.65%	
28.161	para-Cymen-8-ol	1186	0.01%	
28.725	alpha-Terpineol	1194	1.55%	
29.800	Octyl acetate	1210	0.02%	
30.164	trans-Sabinene hydrate acetate	1215	0.08%	
30.245	endo-Fenchyl acetate	1216	0.04%	
30.380	Unidentified	1218	0.01%	
31.652	Neral	1237	0.03%	IFRA
32.448	Linalyl acetate	1248	3.95%	
33.668	Geranial	1266	0.06%	IFRA
34.468	Terpinyl acetate isomer	1278	0.38%	
34.655	Terpinyl acetate isomer	1281	0.16%	
34.771	Bornyl acetate	1283	0.75%	
34.927	Isobornyl acetate	1285	0.23%	



Ret. Time	Component	Ret. Idx.	Conc. %	
35.562	Terpin-1-en-4-yl acetate	1294	0.13%	
35.720	Unidentified	1297	0.02%	
36.703	delta-Terpinyol acetate	1311	0.12%	
37.255	Methyl geranate	1320	0.03%	
37.935	beta-Terpinyol acetate	1330	0.4%	
39.006	alpha-Terpinyol acetate	1347	38.99%	
39.079	gamma-Terpinyol acetate	1348	2.63%	
39.255	Unidentified	1350	0.01%	
39.682	Neryl acetate	1357	0.01%	
40.966	Geranyl acetate	1377	0.52%	
41.547	Dodec-(5Z)-enyl acetate	1385	0.01%	
41.697	beta-Elemene	1388	0.02%	
42.185	Unidentified isomer I	1395	0.06%	
43.142	Unidentified isomer I	1410	0.02%	
43.586	beta-Caryophyllene	1417	0.05%	
44.291	Unidentified	1429	0.04%	
44.456	Terpinyol propionate	1431	0.03%	
45.300	Unidentified	1445	0.01%	
45.871	Unidentified	1454	0.06%	
45.970	Unidentified	1456	0.01%	
47.407	Germacrene D	1479	0.01%	
47.904	beta-Selinene	1487	0.07%	
48.328	alpha-Selinene	1493	0.04%	
49.179	Unidentified	1507	0.01%	
49.380	gamma-Cadinene	1511	0.03%	
49.715	Unidentified	1516	0.05%	
51.510	Unidentified	1547	0.05%	
52.229	trans-Nerolidol	1559	0.75%	
55.039	Unidentified	1607	0.02%	
56.251	Unidentified	1628	0.02%	
56.730	Unidentified	1637	0.01%	
56.874	Unidentified	1639	0.01%	
58.980	Unidentified	1677	0.01%	
63.690	Benzyl benzoate	1764	0.02%	IFRA

Total Identified Compounds **99.57 %**

