



Essential Oil University

GC/MS Report

Item	Lot
Cardamom EO <i>Elettaria cardamomum</i>	4B
Date	Analyst
1/14/2025	Dr. Robert S. Pappas

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The analysis of this batch sample, Cardamom EO, 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**Botanical Name:** Elettaria cardamomum**Lot Number:** 4B**Production Method:** Hydrodistillation**Sample Type:** EO - Single**Country of Origin:** Guatemala**Analysis Date:** 1/14/2025**Manufacture Date:** September 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

+15.48

1.46357

0.92920



Ret. Time	Component	Ret. Idx.	Conc. %	
4.029	3-Methylbutanal	646	0.01%	
11.805	alpha-Thujene	923	0.14%	
12.206	alpha-Pinene	930	2.21%	
13.095	Camphene	946	0.02%	
14.361	Sabinene	969	3.92%	
14.654	beta-Pinene	975	0.91%	
15.022	Unidentified	981	0.01%	
15.104	Unidentified	983	0.01%	
15.290	Myrcene	986	1.01%	
16.137	Octanal	1001	0.04%	
16.343	alpha-Phellandrene	1004	0.03%	
16.488	Unidentified	1007	0.01%	
16.999	alpha-Terpinene	1014	0.28%	
17.482	para-Cymene	1022	0.16%	
17.787	Limonene	1027	4.14%	IFRA
17.986	1,8-Cineole	1030	30.97%	
18.178	cis-beta-Ocimene	1033	0.02%	
18.857	trans-beta-Ocimene	1043	0.04%	
19.634	gamma-Terpinene	1055	0.48%	
20.398	trans-Sabinene hydrate	1067	0.1%	
21.441	Terpinolene	1082	0.28%	
22.391	Linalool	1097	3.83%	IFRA
23.322	trans-4,8-Dimethyl-nona-1,3,7-triene	1111	0.06%	
24.063	cis-para-Menth-2-en-1-ol	1121	0.03%	
25.295	trans-para-Menth-2-en-1-ol	1139	0.02%	
25.593	Camphor	1144	0.03%	
27.206	delta-Terpineol	1167	0.03%	
27.301	Borneol	1168	0.02%	
27.924	Terpinen-4-ol	1177	2.07%	
28.358	Unidentified	1184	0.01%	
28.921	alpha-Terpineol	1192	1.23%	
29.724	Decanal	1204	0.02%	
29.883	Unidentified	1206	0.01%	
30.008	Octyl acetate	1208	0.03%	
31.849	Neral	1235	0.06%	IFRA
32.657	Linalyl acetate	1247	2.18%	
32.928	Unidentified	1251	0.03%	
33.870	Geranial	1264	0.09%	IFRA
34.282	Unidentified	1271	0.01%	
34.981	Bornyl acetate	1281	0.02%	



Ret. Time	Component	Ret. Idx.	Conc. %	
35.777	Terpin-1-en-4-yl acetate	1292	0.02%	
36.288	Unidentified	1300	0.01%	
36.920	delta-Terpinyol acetate	1310	0.17%	
37.460	Methyl geranate	1318	0.1%	
38.154	beta-Terpinyol acetate	1328	0.02%	
38.374	Unidentified	1332	0.01%	
38.801	Myrcen-8-yl acetate	1338	0.02%	
39.218	alpha-Terpinyol acetate	1345	43.15%	
39.901	Neryl acetate	1355	0.02%	
40.800	Unidentified	1369	0.02%	
41.176	Geranyl acetate	1374	0.62%	
41.558	trans-Methyl cinnamate	1380	0.02%	
41.748	Tridec-(4E)-en-1-yl acetate	1383	0.02%	
41.919	beta-Elementene	1386	0.09%	
42.390	Unidentified	1393	0.01%	
42.684	Unidentified	1397	0%	
43.821	beta-Caryophyllene	1416	0.05%	
44.500	Unidentified	1426	0.02%	
44.687	gamma-Terpineol	1429	0.06%	
45.524	Unidentified	1443	0%	
46.070	alpha-Humulene	1452	0.02%	
46.941	Unidentified	1466	0.01%	
47.654	Germacrene D	1477	0.01%	
48.147	beta-Selinene	1485	0.21%	
48.583	alpha-Selinene	1492	0.09%	
49.620	gamma-Cadinene	1509	0.05%	
49.941	Unidentified	1514	0.02%	
52.320	Unidentified	1554	0.01%	
52.461	trans-Nerolidol	1557	0.53%	
53.230	Unidentified	1570	0.01%	
54.121	Unidentified	1585	0.01%	
61.205	Unidentified	1711	0.01%	
81.279	Unidentified	2115	0.04%	

Total Identified Compounds **99.75 %**

