

## Sample Information

**Sample Name:** Cardamom EO

**Botanical Name:** Elettaria cardamomum

**Lot Number:** IDP15-PK

**Production Method:** Steam distilled

**Sample Type:** EO - Single

**Country of Origin:** India

**Analysis Date:** 12/3/2024

**Manufacture Date:** December 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

+12.64

1.46373

0.92597

Ret. Time	Component	Ret. Idx.	Conc. %	
3.961	3-Methylbutanal	646	0%	
5.059	Isopentyl alcohol	726	0%	
11.608	alpha-Thujene	923	0.09%	
12.007	alpha-Pinene	930	1.18%	
12.891	Camphene	947	0.02%	
14.140	Sabinene	970	2.34%	
14.435	beta-Pinene	975	0.45%	
14.785	6-Methyl-hept-5-en-2-one	981	0.01%	
14.881	Unidentified	983	0.01%	
15.060	Myrcene	986	0.57%	
15.911	Octanal	1002	0.03%	
16.107	alpha-Phellandrene	1005	0.04%	
16.759	alpha-Terpinene	1015	0.14%	
17.241	para-Cymene	1022	0.28%	
17.555	Limonene	1027	6.72%	IFRA
17.762	1,8-Cineole	1030	31.68%	
17.930	cis-beta-Ocimene	1033	0.03%	
18.604	trans-beta-Ocimene	1043	0.02%	
19.383	gamma-Terpinene	1055	0.26%	
20.153	trans-Sabinene hydrate	1067	0.12%	
21.168	Terpinolene	1083	0.1%	
21.520	Unidentified	1088	0.01%	
22.139	Linalool	1098	5.1%	IFRA
23.042	trans-4,8-Dimethyl-nona-1,3,7-triene	1111	0.03%	
23.607	Unidentified	1119	0.01%	
23.796	cis-para-Menth-2-en-1-ol	1122	0.02%	
25.016	trans-para-Menth-2-en-1-ol	1140	0.01%	
25.334	Camphor	1144	0.04%	
26.933	delta-Terpineol	1168	0.05%	
27.033	Borneol	1169	0.03%	
27.646	Terpinen-4-ol	1178	1.51%	
28.092	para-Cymen-8-ol	1185	0.01%	
28.666	alpha-Terpineol	1193	4.55%	
29.442	Decanal	1204	0.01%	
29.726	Octyl acetate	1208	0.01%	
30.267	trans-Carveol	1216	0.01%	
30.646	Unidentified	1222	0.01%	
31.186	Unidentified	1230	0.01%	
31.570	Neral	1236	0.04%	IFRA
31.967	Carvone	1241	0.01%	IFRA

Ret. Time	Component	Ret. Idx.	Conc. %	
32.090	Unidentified	1243	0.01%	
32.375	Linalyl acetate	1247	4.04%	
32.455	Geraniol	1249	0.02%	IFRA
32.651	2-Phenethyl acetate	1251	0.01%	
33.145	Unidentified	1259	0.01%	
33.590	Geranial	1265	0.06%	IFRA
34.688	Bornyl acetate	1281	0.01%	
35.000	Unidentified	1286	0%	
35.057	Unidentified	1287	0.01%	
35.481	Terpin-1-en-4-yl acetate	1293	0.01%	
36.626	delta-Terpinyl acetate	1310	0.16%	
37.171	Methyl geranate	1319	0.07%	
38.512	Unidentified	1339	0.02%	
38.922	alpha-Terpinyl acetate	1345	37.92%	
39.611	Neryl acetate	1356	0.01%	
40.395	Isodene	1368	0%	
40.506	Methyl dec-(2E)-enoate	1370	0.02%	
40.888	Geranyl acetate	1375	0.14%	
41.272	trans-Methyl cinnamate	1381	0.01%	
41.618	beta-Elemene	1386	0.05%	
42.384	Unidentified	1398	0.01%	
43.502	beta-Caryophyllene	1416	0.06%	
44.125	Unidentified	1426	0.01%	
44.215	Unidentified	1427	0.01%	
44.377	Terpinyl propionate	1430	0.04%	
45.751	alpha-Humulene	1452	0.04%	
47.335	Germacrene D	1477	0.02%	
47.827	beta-Selinene	1485	0.13%	
48.254	alpha-Selinene	1492	0.06%	
49.298	gamma-Cadinene	1509	0.03%	
49.622	Unidentified	1515	0.02%	
51.382	Unidentified	1545	0.03%	
51.991	Germacrene B	1555	0.01%	
52.152	trans-Nerolidol	1558	1.24%	
53.802	Unidentified	1586	0.01%	
58.403	Unidentified	1667	0.01%	
60.874	(2E,6E)-Farnesol	1711	0.01%	IFRA
73.353	Unidentified	1954	0.02%	
80.916	Unidentified	2116	0.01%	
93.796	Unidentified	2420	0.01%	

Ret. Time	Component	Ret. Idx.	Conc. %
95.284	Unidentified	2458	0.06%

Total Identified Compounds **99.68 %**

