

Sample Information

Sample Name: Ginger Fresh Madagascar
Botanical Name: Zingiber officinale
Lot Number: MAP13-PK
Production Method: Steam distilled

Sample Type: EO - Single
Country of Origin: Madagascar
Analysis Date: 5/7/2024
Manufacture Date: May 2024

Inst. ID: Shimadzu GCMS-QP2010Ultra
Injection Type: Split
Split Ratio: 24.4

GC/MS

Column Type: ZB-5
Injection Volume: 0.1 µL
Temperature Program: 2C/min

ANALYSIS

Optical Rotation @20°C
Refractive Index @20°C
Specific Gravity @20°C

Physical Data

METHOD	RESULTS
USP[781]	-23.40
USP[831]	1.49122
USP[841]	0.88524

Component

USP[841]

0.88524%

Ret. Time		Ret. Idx.		
5.972	Toluene	774	0.01%	IFRA
10.112		878		
11.787		914		
12.347		924		
13.150	alpha-Fenchene	938	0.01%	
13.254	Camphene	940	7.98%	
13.890	Verbenene	951	0.01%	
14.512	Sabinene	962	0.03%	
14.810	beta-Pinene	968	0.32%	
15.129		973		
16.299		994		
16.503		998		
17.164		1008		
17.642	para-Cymene	1015	0.06%	
17.951	Limonene	1020	1.43%	
18.053	beta-Phellandrene	1021	3.62%	
18.124	1,8-Cineole	1022	3.04%	
22.689	2-Nonanol	1091	0.06%	
23.510	4,8-Dimethyl-1,3,7-nonadiene	1104	0.06%	
23.879	endo-Fenchol	1109	0.01%	
24.253	cis-para-Menth-2-en-1-ol	1114	0.01%	
24.351	Unidentified	1116	0.01%	
25.470	Unidentified	1132	0.01%	
25.788	Camphor	1136	0.04%	
26.155	Citronellal	1142	0.03%	IFRA
26.340	Camphene hydrate	1144	0.03%	

18.348	cis-beta-Ocimene	1026	0.01%
18.506	2-Heptyl acetate	1028	0.01%
19.806	gamma-Terpinene	1048	0.05%
21.611	Terpinolene	1075	0.19%
21.943	2-Nonanone	1080	0.07%
22.040	Rosefuran	1082	0.04%
22.458	Unidentified	1088	0.05%
22.554	Linalool	1089	0.26%

Components

Ret. Time	Component	Ret. Idx.	Conc. %	
26.792	Unidentified	1151	0.01%	
26.913	Isoborneol	1152	0.01%	
27.328	Unidentified	1158	0.01%	
27.503	Borneol	1161	0.61%	
28.110	Terpinen-4-ol	1170	0.13%	
28.539	Unidentified	1176	0.02%	
29.112	alpha-Terpineol	1184	0.4%	
29.909	Decanal	1195	0.06%	
31.100	Nerol	1213	0%	
31.261	Citronellol	1215	0.05%	IFRA
31.395		1217		
				
32.775		1237		
				
33.713		1251		
34.975		1269		
35.764		1281		
36.436		1290		
39.361		1334		
				
40.751		1356		
41.374		1365		
42.005		1375		
42.962		1389		
44.659		1416		
	trans-alpha-Bergamotene	1419	0.1%	
45.366	cis-beta-Farnesene	1427	0.02%	
45.778	alpha-Guaiene	1433	0.06%	
46.140	trans-beta-Farnesene	1439	0.38%	
46.273	alpha-Humulene	1441	0.04%	
46.408	Amorpha-4,11-diene	1443	0.02%	
46.554	Alloaromadendrene	1446	0.25%	

47.035		1454		
47.498		1461		
47.881		1467		
	Aristolochene	1470	0.22%	
48.360	beta-Selinene	1475	0.26%	
48.578	Unidentified + Valencene	1478	0.13%	
48.811	alpha-Zingiberene	1482	30.56%	
48.987	trans-Muurolo-4(14),5-diene	1485	2.18%	
49.335	trans,trans-alpha-Farnesene	1490	4.86%	
49.549	beta-Bisabolene	1494	6.05%	
49.764	cis-Cadina-1(6),4-diene	1497	0.18%	
49.848	gamma-Cadinene	1498	0.15%	
49.975	Cubebol	1500	0.02%	
50.163	delta-Cadinene + (-)-alpha-Panasinen	1504	0.75%	
50.335	trans-calamenene	1507	0.02%	
50.508	beta-Sesquiphellandrene	1509	10.4%	
50.665	trans-gamma-Bisabolene	1512	0.34%	
51.003	trans-Cadina-1,4-diene	1518	0.05%	
51.255	Selina-4(15),7(11)-diene	1522	0.06%	
51.561	Unidentified	1527	0.13%	
51.909	Elemol	1533	0.24%	
52.269	cis-Sesquisabinene hydrate	1539	0.13%	
52.537	Germacrene B	1544	0.33%	
52.667	trans-Nerolidol	1546	0.47%	
54.376	trans-sesquisabinene hydrate	1574	0.17%	
55.159	Unidentified	1588	0.03%	
55.773	cis-Zingiberenol	1598	0.36%	
56.228	gamma-Eudesmol	1606	0.13%	
56.434	Unidentified	1609	0.1%	
56.550	Unidentified	1612	0.05%	
56.700	Unidentified	1614	0.16%	
56.742	trans-Zingiberenol	1615	0.4%	
57.340	tau-Cadinol	1626	0.02%	
57.454	epi-alpha-Muurolol	1628	0.04%	
58.064	beta-Eudesmol	1638	0.61%	
58.253	Pogostol	1642	0.16%	
58.582	Unidentified	1647	0.06%	
58.917	beta-Bisabolol	1653	0.13%	

GC/MS Report: Chromatogram

Ret. Time	Component	Ret. Idx.	Conc. %	
59.828	Zingiberenol analogue	1670	0.4%	
60.050	Bergamotol analogue	1673	0.06%	
60.279	Farnesol isomer	1678	0.23%	IFRA
61.079	Farnesol isomer	1692	0.03%	
61.919	cis-Nuciferol	1707	0.04%	
62.554	trans,trans-Farnesal	1719	0.07%	
63.075	Xanthorhizol	1728	0.04%	
63.234	Unidentified	1731	0.04%	
63.922	cis-Lanceol	1744	0.01%	
66.281	Unidentified	1788	0.19%	
69.157	Unidentified	1844	0.05%	
69.407	Unidentified	1849	0.01%	
73.515	Geranyl-para-cymene	1930	0.03%	
74.823	Geranyl-alpha-terpinene	1957	0.06%	
82.607	(E,E)-Geranyl linalool isomer	2123	0.02%	
83.395	Unidentified	2141	0.02%	
85.842	Unidentified	2196	0.04%	

Total Identified Compounds **98.48 %**

GC/MS Report: Chromatogram