



Aromatic Plant Research Center

We provide uncompromising
quality control for your products.

Customer : doTERRA International
Lot Number : 222561
Date Filled : 09/13/2022

Column : ZB5 (60 m length × 0.25 mm inner diameter × 0.25 µm film thickness)
Instrument : Shimadzu GCMS-QP2010 Ultra
Carrier gas : Helium 80 psi
Temperature ramp : 2 degrees celsius per minute up to 260-degrees celsius
Split ratio : 30:1
Sample preparation : 5%w/v solution with Dichloromethane.



Comments:

The analysis of this Marjoram lot revealed no contaminants or adulteration.
The sample meets the expected chemical profile for authentic essential oils of *Origanum majorana*.

Analysied by : Ambika Poudel
Reviewed by : Dr. Prabodh Satyal



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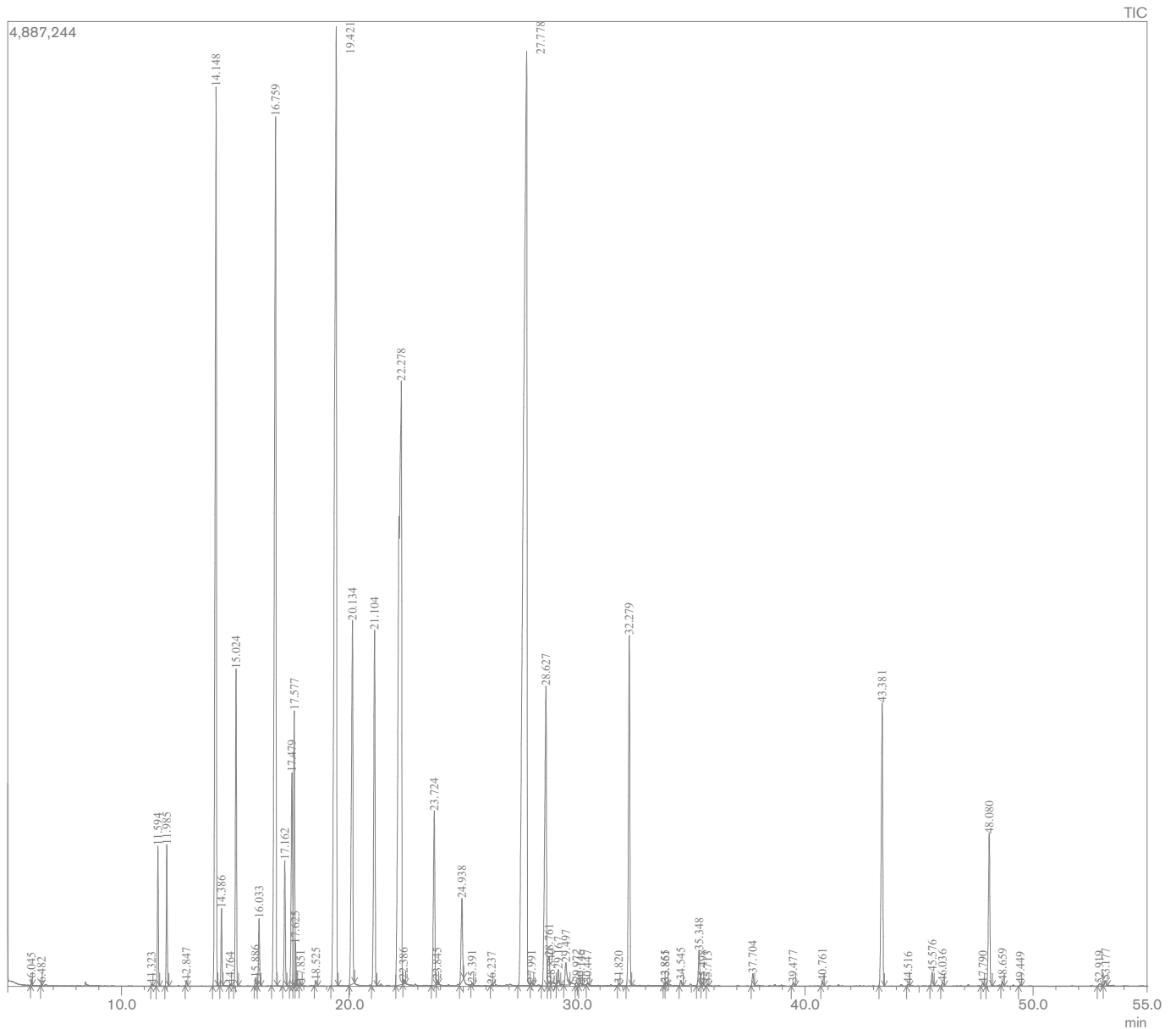
Marjoram Essential Oil

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Chromatogram



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Peak Report

Peak#	R.Time	Name	Area%
1	6.045	Methyl alpha-methyl butyrate	0.03
2	6.482	1,1-Dimethyl-2-propenyl acetate	0.01
3	11.323	Hashishene	0.01
4	11.594	alpha-Thujene	0.85
5	11.985	alpha-Pinene	0.88
6	12.847	Camphene	0.04
7	14.148	Sabinene	8.55
8	14.386	beta-Pinene	0.49
9	14.764	3-Octanone	0.01
10	15.024	Myrcene	2.31
11	15.886	para-Mentha-1(7),8-diene	0.07
12	16.033	alpha-Phellandrene	0.50
13	16.759	alpha-Terpinene	9.45
14	17.162	para-Cymene	0.94
15	17.479	Limonene	2.01
16	17.577	beta-Phellandrene	2.08
17	17.625	1,8-Cineole	0.20
18	17.851	cis-beta-Ocimene	0.02
19	18.525	trans-beta-Ocimene	0.04
20	19.421	gamma-Terpinene	13.73
21	20.134	cis-Sabinene hydrate	3.74
22	21.104	Terpinolene	3.28
23	22.278	trans-Sabinene hydrate	12.25
24	22.386	n-Nonanal	0.04
25	23.724	cis-para-Menth-2-en-1-ol	1.63
26	23.845	alpha-Campholenal	0.04
27	24.938	trans-para-Menth-2-en-1-ol	0.80
28	25.391	1,4-Dimethyl-4-acetyl cyclohexene	0.02
29	26.237	Pinocarvone	0.01
30	27.778	Terpinen-4-ol	22.55
31	27.991	para-Cymen-8-ol	0.03
32	28.627	alpha-Terpineol	3.57
33	28.761	cis-Dihydro carvone	0.39
34	28.840	cis-Piperitol	0.08
35	29.167	trans-Dihydro carvone	0.16
36	29.497	trans-Piperitol	0.31
37	29.972	cis-Sabinene hydrate acetate	0.04
38	30.146	Marjoram sesquiterpenoid 1	0.04
39	30.447	Marjoram sesquiterpenoid 2	0.02
40	31.820	Carvone	0.02
41	32.279	Linalyl acetate	3.27
42	33.855	Citronellyl formate	0.02
43	33.861	trans-Ascaridol glycol	0.03
44	34.545	Bornyl acetate	0.05
45	35.348	Terpinen-4-ol acetate	0.34
46	35.498	Geranyl formate+Carvacrol	0.02
47	35.713	Tridecane	0.02
48	37.704	delta-Elemene	0.12
49	39.477	Neryl acetate	0.03
50	40.761	Geranyl acetate	0.05
51	43.381	beta-Caryophyllene	2.99
52	44.516	Aromadendrene	0.02
53	45.576	alpha-Humulene	0.13
54	46.036	4,6,8,10-Tridecane tetramethyl	0.04
55	47.790	Viridiflorene	0.03
56	48.080	Bicyclogermacrene	1.46
57	48.659	trans-trans-alpha-Farnesene	0.04
58	49.449	delta-Cadinene	0.02
59	52.919	Spathulenol	0.04
60	53.177	Caryophyllene oxide	0.05
			100.00

