



# Aromatic Plant Research Center

We provide uncompromising  
quality control for your products.

**Customer:** doTERRA International

**Lot Number:** 1714210

**Date Filled:** 5/22/2017

**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.

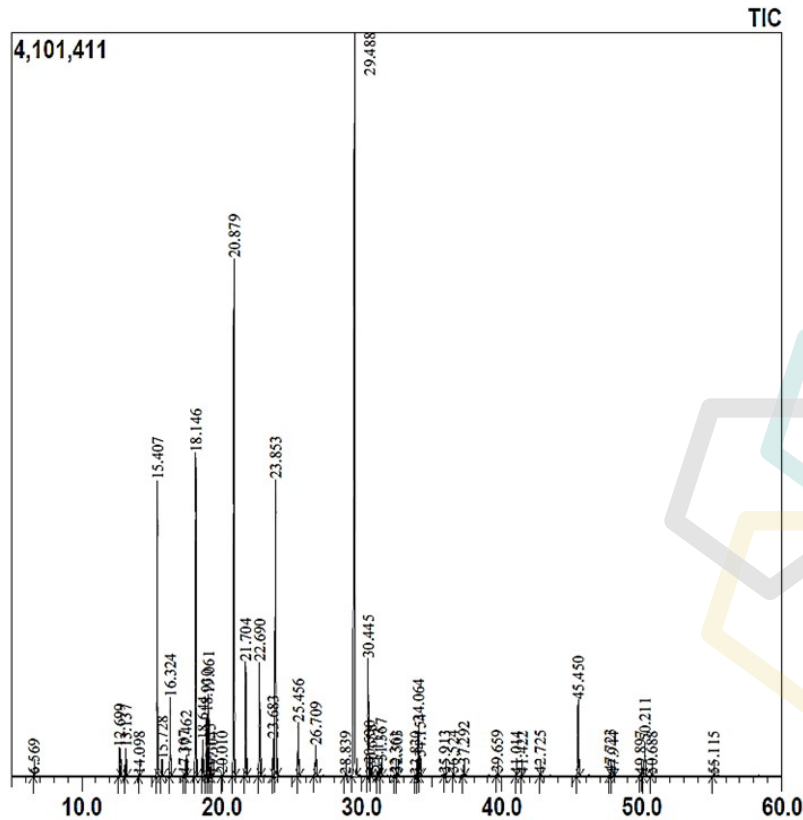
The sample meets the expected chemical profile for authentic essential oils of *Origanum majorana*.



# Marjoram Essential Oil

Customer: doTERRA International  
 Lot Number: 1714210  
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## Chromatogram



## Peak Report

Ret.Time	Compound Name	Area %
6.569	Methyl-alpha-methyl butyrate	0.02
12.699	alpha-Thujene	0.65
13.137	alpha-Pinene	0.64
14.098	Camphene	0.03
15.407	Sabinene	7.16
15.728	beta-Pinene	0.4
16.324	Myrcene	1.9
17.307	Pseudolimonene	0.05
17.462	alpha-Phellandrene	0.56
18.146	alpha-Terpinene	8.65
18.644	para-Cymene	0.93
18.93	Limonene	1.7
19.061	beta-Phellandrene	2.13
19.155	1,8-Cineole	0.21
19.304	cis-beta-Ocimene	0.03
20.01	trans-beta-Ocimene	0.04
20.879	gamma-Terpinene	14.85
21.704	cis-Sabinene hydrate	3.22
22.69	Terpinolene	3.22
23.683	Linalool	0.98
23.853	trans-Sabinene hydrate	9.51
25.456	cis-para-Menth-2-en-1-ol	1.55
26.709	trans-para-Menth-2-en-1-ol	0.94
28.839	Borneol	0.03
29.488	Terpinen-4-ol	28.86
30.445	alpha-Terpineol	3.97
30.53	cis-Piperitol	0.03
30.658	cis-Dihydro carvone	0.16
31.113	trans-Dihydro carvone	0.13
31.367	trans-Piperitol	0.43
32.361	Nerol	0.04
32.503	Citronellol	0.07
33.83	Carvone	0.03
34.064	Linalyl acetate	1.78
34.154	trans-Sabinene hydrate acetate	0.53
35.913	trans-Carvone oxide	0.05
36.524	Bornyl acetate	0.05
37.292	Isobornyl acetate	0.34
39.659	delta-Elementene	0.08
41.014	Eugenol	0.03
41.422	Neryl acetate	0.03
42.725	Geranyl acetate	0.05
45.45	beta-Caryophyllene	2.57
47.723	alpha-Humulene	0.11
47.944	4,6,8,10-tetramethyl Tridecane	0.04
49.897	Viridiflorene	0.03
50.211	Bicyclogermacrene	1.17
50.688	trans,trans-alpha-Farnesene	0.03
55.115	Spathulenol	0.03
Area Total:		100

### 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*.

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