



Aromatic Plant Research Center

We provide uncompromising
quality control for your products.

Customer : doTERRA International
Lot Number : 231422
Date Filled : 05/22/2023

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 Tangerine lot revealed no contaminants or adulteration.
The sample meets the expected chemical profile for authentic essential oils of *Citrus reticulata*.

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



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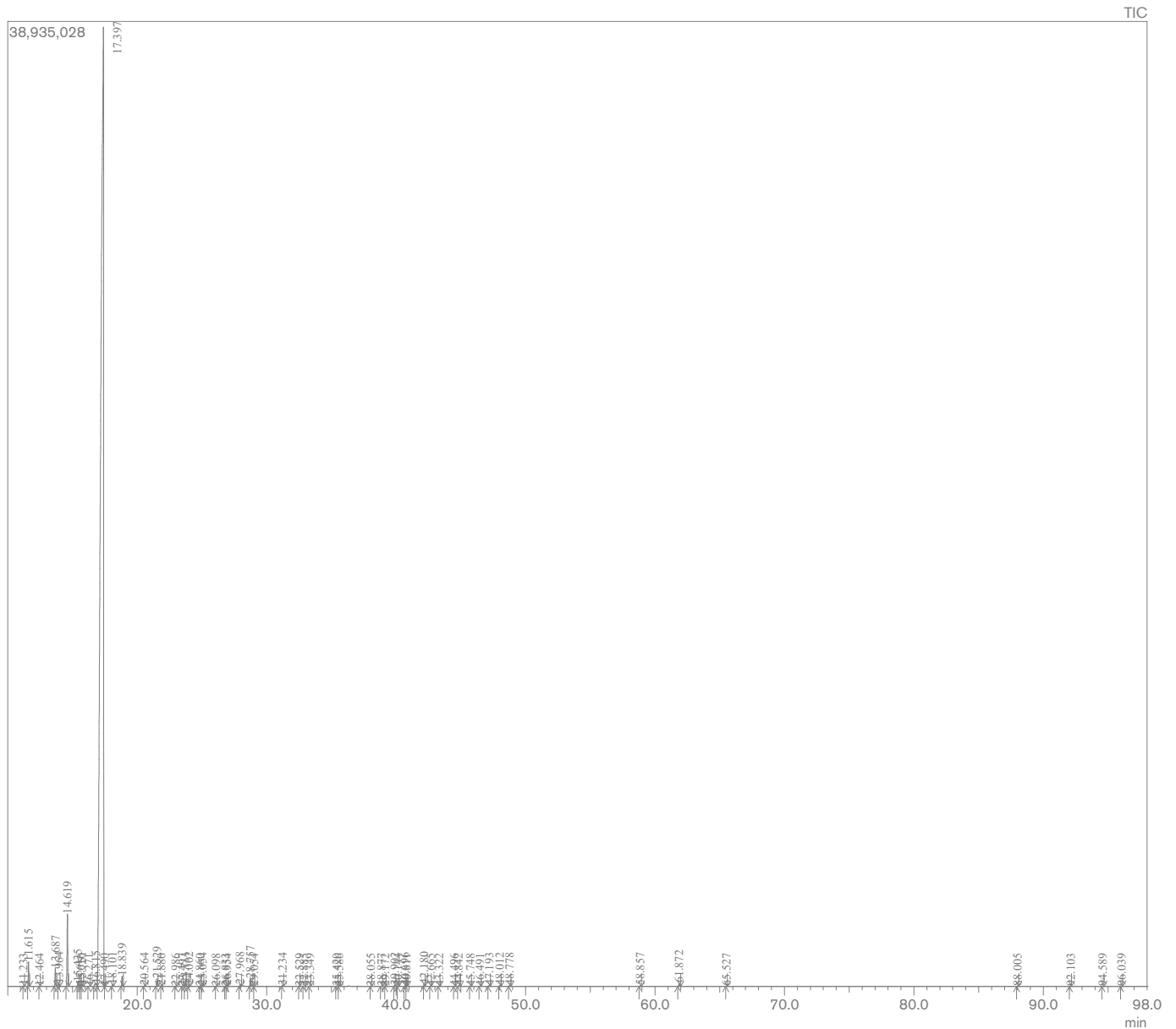
Tangerine Essential Oil

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Chromatogram



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Peak Report

Peak#	R.Time	Name	Area%
1	11.233	alpha-Thujene	0.01
2	11.615	alpha-Pinene	0.46
3	12.464	Camphene	0.00
4	13.687	Sabinene	0.38
5	13.964	beta-Pinene	0.05
6	14.619	Myrcene	1.70
7	15.435	n-Octanal	0.11
8	15.616	alpha-Phellandrene	0.02
9	15.751	delta-3-Carene	0.05
10	16.271	alpha-Terpinene	0.01
11	16.815	para-Cymene	0.19
12	17.397	Limonene	95.59
13	17.490	cis-beta-Ocimene	0.00
14	18.101	trans-beta-Ocimene	0.04
15	18.839	gamma-Terpinene	0.22
16	20.564	Terpinolene	0.02
17	21.529	Linalool	0.18
18	21.880	n-Nonanal	0.01
19	22.986	trans-para-Mentha-2,8-dien-1-ol	0.01
20	23.497	Octyl formate	0.00
21	23.711	cis-Limonene oxide	0.05
22	24.002	trans-Limonene oxide	0.05
23	24.860	trans-Dihydro-alpha-terpineol	0.01
24	25.054	Citronellal	0.03
25	26.098	Octanoic acid+6-Methyl-bicyclo[3.3.0] oct-2-en-7-one	0.00
26	26.833	para-1,8-Menthadien-4-ol	0.00
27	26.954	Terpinen-4-ol	0.02
28	27.968	alpha-Terpineol	0.06
29	28.757	n-Decanal	0.20
30	29.054	Octyl acetate	0.01
31	31.234	Carvone	0.02
32	32.529	2-trans-Decenal	0.00
33	32.885	Geranial	0.01
34	33.349	Perilla aldehyde	0.01
35	35.420	Limonene hydroperoxide	0.02
36	35.586	Undecanal	0.01
37	38.055	alpha-Terpinyl acetate	0.00
38	38.877	Neryl acetate	0.01
39	39.172	Decanoic acid	0.00
40	39.902	alpha-Copaene	0.03
41	40.144	Geranyl acetate	0.01
42	40.696	beta-Cubebene	0.02
43	40.811	beta-Elemene	0.01
44	42.180	Dodecanal	0.05
45	42.665	beta-Caryophyllene	0.01
46	43.322	beta-Copaene	0.01
47	44.496	2-cis-6-trans-Dodecadien-1-al	0.01
48	44.842	trans-beta-Farnesene	0.02
49	45.748	2-trans-Dodecenal	0.01
50	46.491	Germacrene D	0.01
51	47.193	Valencene	0.02
52	48.012	trans-trans-alpha-Farnesene	0.03
53	48.778	delta-Cadinene	0.03
54	58.857	beta-Sinensal	0.02
55	61.872	alpha-Sinensal	0.09
56	65.527	Hexadecanal	0.00
57	88.005	Tricosane	0.01
58	92.103	Tetracosane	0.00
59	94.589	2-Methyltetracosane	0.01
60	96.039	Pentacosane	0.01
			100.00

