

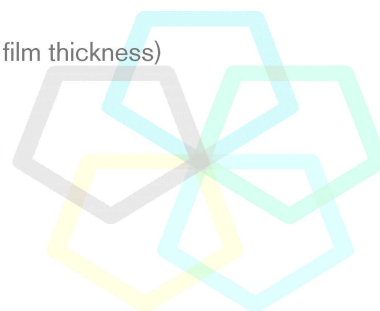


Aromatic Plant Research Center

We provide uncompromising
quality control for your products.

Customer : doTERRA International
Lot Number : 2103311
Date Filled : 02/02/2021

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 Blue Tansy lot revealed no contaminants or adulteration.
The sample meets the expected chemical profile for authentic essential oils of Tanacetum annuum.

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



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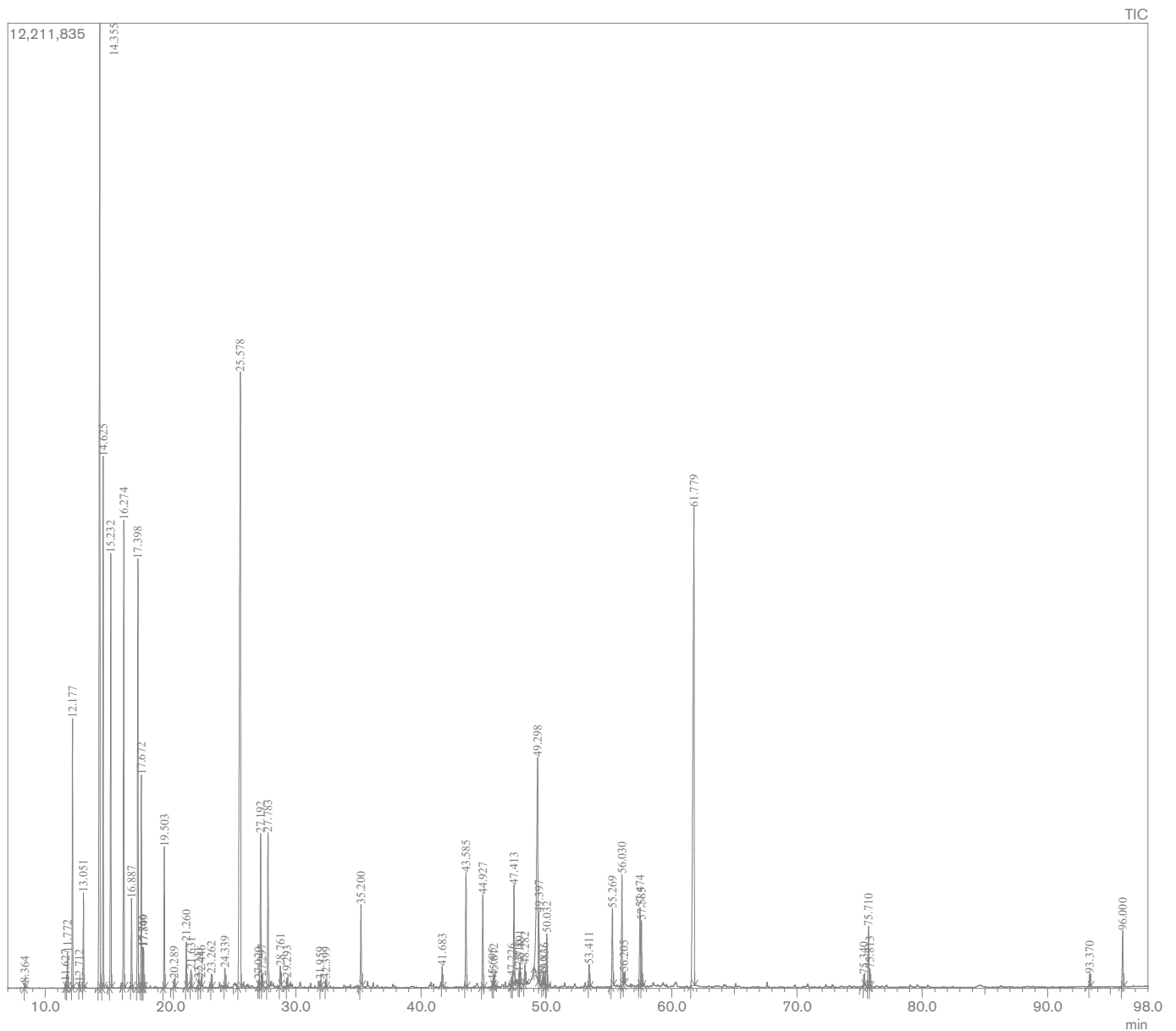
Blue Tansy Essential Oil

Customer : doTERRA International

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Chromatogram



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Peak Report

Peak#	R.Time	Name	Area%
1	8.364	Ethyl 2-methylbutyrate	0.04
2	11.627	Tricyclene	0.05
3	11.772	alpha-Thujene	0.33
4	12.177	alpha-Pinene	2.65
5	12.712	2-Methyl propyl butyrate	0.05
6	13.051	Camphene	0.92
7	14.355	Sabinene	14.45
8	14.625	beta-Pinene	6.10
9	15.232	Myrcene	5.11
10	16.274	alpha-Phellandrene	5.55
11	16.887	alpha-Terpinene	0.98
12	17.398	para-Cymene	5.50
13	17.672	Limonene	2.42
14	17.766	beta-Phellandrene	0.41
15	17.849	1,8-Cineole	0.44
16	19.503	gamma-Terpinene	1.62
17	20.289	cis-Sabinene hydrate	0.10
18	21.260	Terpinolene	0.51
19	21.631	6-7-Epoxy myrcene	0.21
20	22.241	Linalool	0.06
21	22.446	2-Methyl butyl-2-methyl butyrate	0.10
22	23.262	Blue Tansy Sesquiterpenoid 1	0.16
23	24.339	4-Acetyl-1-methyl cyclohexene	0.25
24	25.578	Camphor	13.24
25	27.020	exo-Isocamphone	0.09
26	27.192	Borneol	2.09
27	27.297	endo-isocamphone	0.12
28	27.783	Terpinen-4-ol	2.10
29	28.761	alpha-Terpineol	0.26
30	29.293	cis-Sabinol	0.11
31	31.959	Cumin aldehyde	0.07
32	32.399	Carvotanacetone	0.08
33	35.200	Thymol	1.09
34	41.683	beta-Elemene	0.24
35	43.585	beta-Caryophyllene	1.64
36	44.927	cis-beta-Farnesene	1.33
37	45.695	trans-beta-Farnesene	0.06
38	45.812	alpha-Humulene	0.13
39	47.226	gamma-Curcumene	0.11
40	47.413	Germacrene D	1.46
41	47.810	Viridiflorene	0.16
42	47.891	beta-Selinene	0.28
43	48.282	Bicyclogermacrene	0.30
44	49.298	3,6-Dihydro chamazulene	5.83
45	49.397	Dihydro chamazulene A	0.79
46	49.677	delta-Cadinene	0.09
47	49.836	Dihydro chamazulene B	0.12
48	50.032	beta-Sesquiphellandrene	0.77
49	53.411	Caryophyllene oxide	0.30
50	55.269	Dihydro chamazulene C	1.17
51	56.030	Dihydrochamazulene D	1.64
52	56.205	Eremoligenol	0.14
53	57.474	Dihydro chamazulene E	1.31
54	57.585	beta-Eudesmol	0.97
55	61.779	Chamazulene	11.57
56	75.340	Blue Tansy Sesquiterpenoid 2	0.15
57	75.710	9-(15,16-Dihydro-15-methylene)-geranyl-alpha-terpinene	0.92
58	75.813	9-(15,16-Dihydro-15-methylene)-geranyl-para-cymene	0.25
59	93.370	Dihydro chamazulene+Monoterpene A	0.17
60	96.000	Dihydro chamazulene+Monoterpene B	0.84
			100.00

