

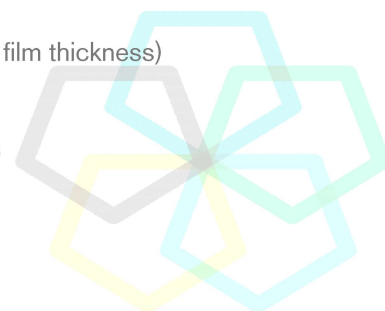


## Aromatic Plant Research Center

We provide uncompromising  
quality control for your products.

**Customer** : doTERRA International  
**Lot Number** : 201748  
**Date Filled** : 06/22/2020

**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 Clove lot revealed no contaminants or adulteration.  
The sample meets the expected chemical profile for authentic essential oils of *Eugenia caryophyllata*.

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



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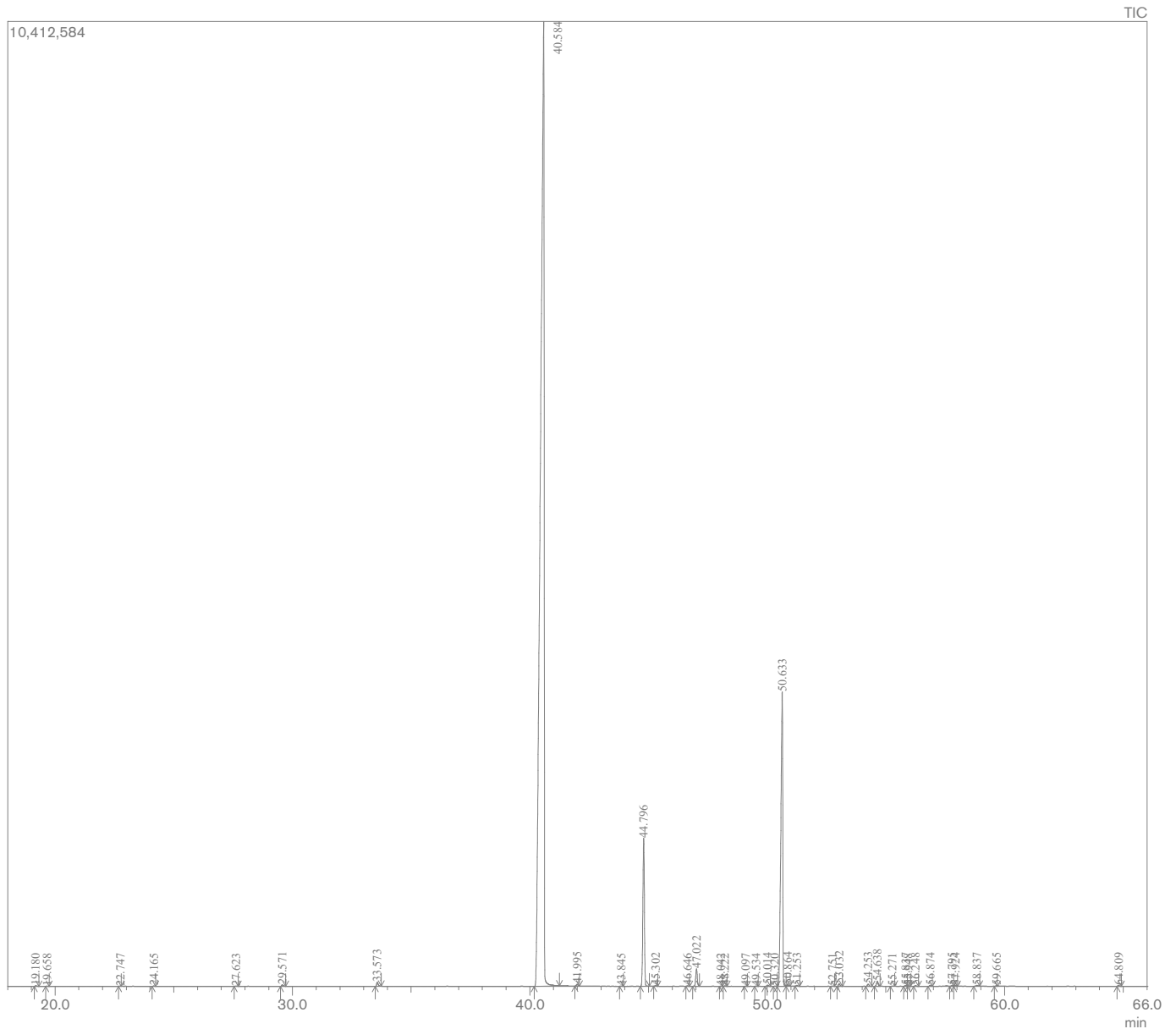
# Clove Essential Oil

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## Chromatogram



## Peak Report

Peak#	R.Time	Name	Area%
1	19.180	2-Heptyl acetate	0.02
2	19.658	trans-beta-Ocimene	0.01
3	22.747	2-Nonanone	0.01
4	24.165	4,8 Dimethyl-nona-1,3,7-triene	0.01
5	27.623	Benzyl acetate	0.01
6	29.571	Methyl salicylate	0.06
7	33.573	Chavicol	0.15
8	40.584	Eugenol	80.43
9	41.995	alpha-Copaene	0.06
10	43.845	cis-Caryophyllene	0.01
11	44.796	beta-Caryophyllene	5.16
12	45.302	beta-Ylangene	0.02
13	46.646	Spirolepechinene	0.02
14	47.022	alpha-Humulene	0.61
15	48.042	Clove Sesquiterpenoid 1	0.01
16	48.222	trans-Cadina-1(6),4-diene	0.01
17	49.097	beta-Selinene	0.01
18	49.534	alpha-Selinene	0.01
19	50.014	trans-trans-alpha-Farnesene	0.04
20	50.320	Clove Sesquiterpenoid 2	0.01
21	50.633	Eugenyl acetate	12.56
22	50.864	delta-Cadinene	0.05
23	51.253	Clove Sesquiterpenoid 3	0.03
24	52.751	Isocaryophyllene oxide	0.01
25	53.032	Clove Sesquiterpenoid 4	0.10
26	54.253	Caryophyllenyl alcohol	0.09
27	54.638	Caryophyllene oxide	0.18
28	55.271	Hydrolysed caryophyllene	0.01
29	55.837	Sesquiterpeneol	0.04
30	55.948	Clove Sesquiterpenoid 5	0.02
31	56.248	Humulene epoxide II	0.02
32	56.874	Widdrol isomer	0.04
33	57.795	Caryophylla-4(12),8(13)-dien-5-beta-ol	0.04
34	57.924	Clove Sesquiterpenoid 6	0.04
35	58.837	14-Hydroxy-9-epi-cis-caryophyllene	0.05
36	59.665	14-Hydroxy-9-epi-trans-caryophyllene	0.03
37	64.809	Benzyl benzoate	0.03
			100.00

