

Client



Source



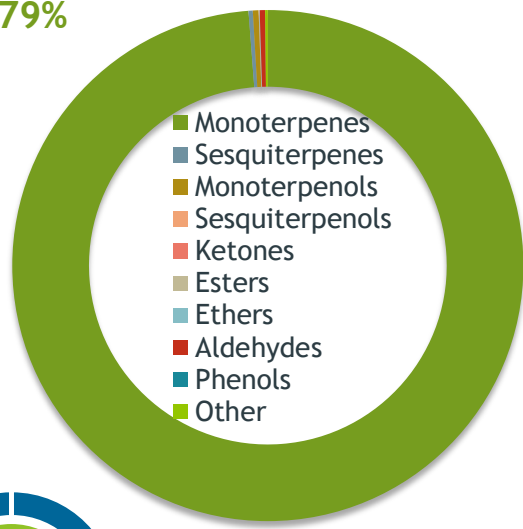
Mandarin (*Citrus reticulata*)  
NF-MANS-20-A

Sample

Mandarin (*Citrus reticulata*)  
Batch #:..... NF-MANS-20-A  
Type:..... Essential Oil  
CAS Number:... 8008-31-9  
**Nature's Fusions**

Monoterpenes

98.79%



Client



Website



Primary

**90.74%** Limonene  
**2.86%** Myrcene  
**2.75%** gamma-Terpinene



Percentage Identified

Result



Conclusion

No adulterants, diluents, or contaminants were detected via this method. This oil meets the expected profile for genuine Essential Oil of Mandarin (*Citrus reticulata*)

Internal Number: | EVS-4084



Essential Validation Services

747 SW 2nd Ave IMB 12 Suite 306  
Gainesville, FL 32601

317.361.5044 | <https://essentialvalidationservices.com/>

*Alan Christen*

Monoterpenes	98.79%	98.79%
Sesquiterpenes		0.27%
Monoterpenols		0.36%
Sesquiterpenols		0.01%
Ketones		0.00%
Esters		0.04%
Ethers		0.02%
Aldehydes		0.34%
Phenols		0.00%
Other		0.17%

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Client


**Nature's FUSIONS**  
 ESSENTIAL OILS

Source

Mandarin (*Citrus reticulata*)

NF-MANS-20-A

Total Percentage		99.92%		
Number	RT	Area %	Compound Name	Chemical Family
1	8.02	0.12%	alpha-Thujene	Monoterpene
2	8.27	1.04%	alpha-Pinene	Monoterpene
3	9.84	0.36%	Sabinene	Monoterpene
4	10.00	0.31%	beta-Pinene	Monoterpene
5	10.59	2.86%	Myrcene	Monoterpene
6	11.18	0.04%	Octanal	Aliphatic Aldehyde
7	11.24	0.04%	alpha-Phellandrene	Monoterpene
8	11.34	0.05%	delta-3-Carene	Monoterpene
9	11.71	0.06%	2-Carene	Monoterpene
10	12.07	0.28%	para-Cymene	Monoterpene
11	12.40	90.74%	Limonene	Monoterpene
12	13.09	0.06%	(E)-beta-Ocimene	Monoterpene
13	13.57	2.75%	gamma-Terpinene	Monoterpene
14	14.23	0.09%	1-Octanol	Aliphatic Alcohol
15	14.79	0.12%	Terpinolene	Monoterpene
16	15.51	0.28%	Linalool	Monoterpenol
17	15.74	0.02%	Nonanal	Aliphatic Aldehyde
18	17.14	0.02%	trans-Limonene oxide	Monoterpene Ether
19	17.91	0.02%	Citronellal	Monoterpene Aldehyde
20	19.81	0.07%	alpha-Terpineol	Monoterpenol
21	20.41	0.16%	Decanal	Aliphatic Aldehyde
22	23.39	0.03%	Perilla aldehyde	Monoterpene Aldehyde
23	23.47	0.01%	1-Decanol	Monoterpenol
24	27.19	0.02%	Neryl acetate	Monoterpene Ester
25	27.79	0.05%	alpha-Copaene	Sesquiterpene
26	28.03	0.02%	Geranyl acetate	Monoterpene Ester
27	28.33	0.04%	beta-Cubebene	Sesquiterpene
28	28.41	0.02%	beta-Elemene	Sesquiterpene
29	29.34	0.02%	Dodecanal	Aliphatic Aldehyde
30	31.13	0.01%	(E)-beta-Farnesene	Sesquiterpene
31	32.11	0.04%	Germacrene D	Sesquiterpene
32	33.23	0.06%	(E,E)-alpha-Farnesene	Sesquiterpene
33	33.68	0.05%	delta-Cadinene	Sesquiterpene
34	34.82	0.01%	Elemol	Sesquiterpenol
35	42.31	0.05%	alpha-Sinensal	Sesquiterpene Aldehyde

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- Essential Oil testing is performed by using qualitative GC-MS. Method: SOP.T.01 Client Method  
 - This report may not be published without the consent of Essential Validation Services.  
 - Chromatograph image may be requested  
 - This report is valid for 1 year from the analyzed date

Client



Source



*Mandarin (Citrus reticulata)*  
*NF-MANS-20-A*

Number	RT	Area %	Compound Name	Chemical Family
				Sesquiterpene Aldehyde

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- Essential Oil testing is performed by using qualitative GC-MS. Method: SOP.T.01 Client Method
- This report may not be published without the consent of Essential Validation Services.
- Chromatograph image may be requested
- This report is valid for 1 year from the analyzed date

Client



Source



Mandarin (*Citrus reticulata*)  
NF-MANS-20-A


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## *Essential Validation Services*



## Sample:

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Client: | Nature's Fusions  
Sample: | Mandarin (Citrus reticulata)  
Batch # | 11088-A46  
CAS Number | 8008-31-9  
Type: | Essential Oil

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## Conclusion:

- No adulterants, diluents, or contaminants were detected via this method.



X 

Validated By:

Essential Validation Services

747 SW 2nd Ave, Gainesville, FL 32601

Phone: 317-361-5044 E-mail: [Adam@essentialvalidationservices.com](mailto:Adam@essentialvalidationservices.com)

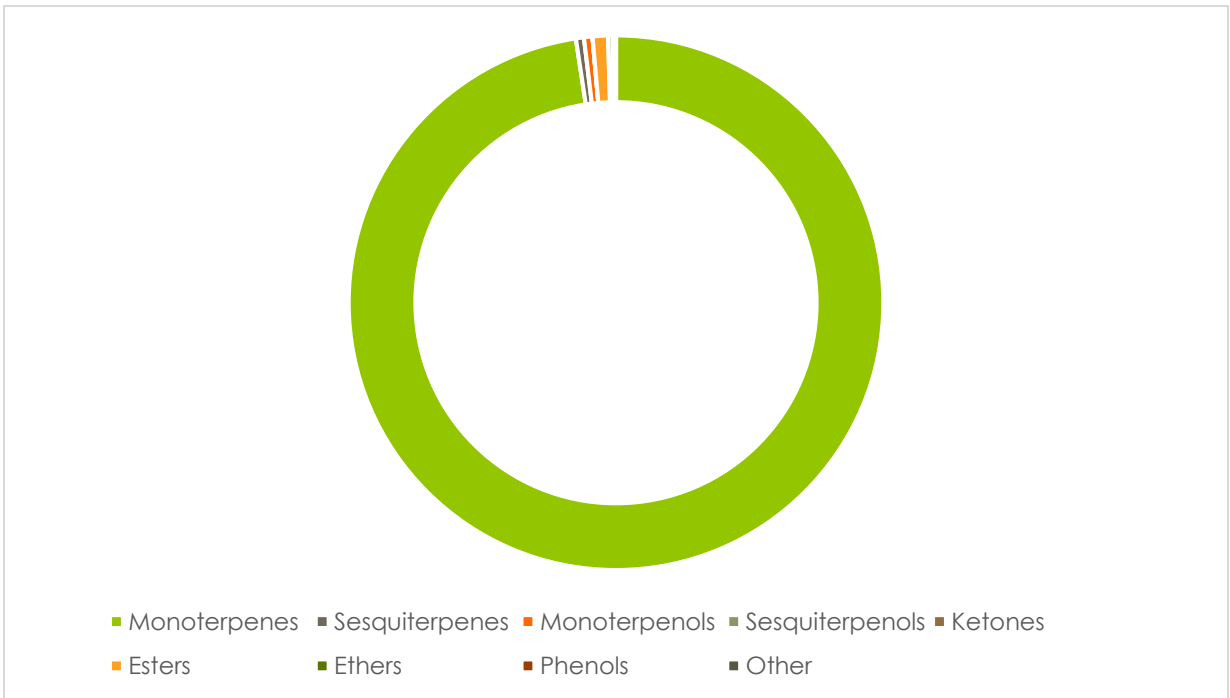
## Summary of Analyses

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A fresh sample of Mandarin (Citrus reticulata) Essential Oil (10 uL in .5to.5 mL Hexane + ETOH) was prepared and analyzed via split injection GC/EI-MS.

Main Compounds	Percentages
Limonene	60.75%
gamma-Terpinene	20.00%
para-Cymene	4.96%
alpha-Pinene	3.51%
Myrcene	2.18%
beta-Pinene	2.12%
alpha-Thujene	1.08%
Terpinolene	0.95%
Methyl N-methyl anthrani	0.92%

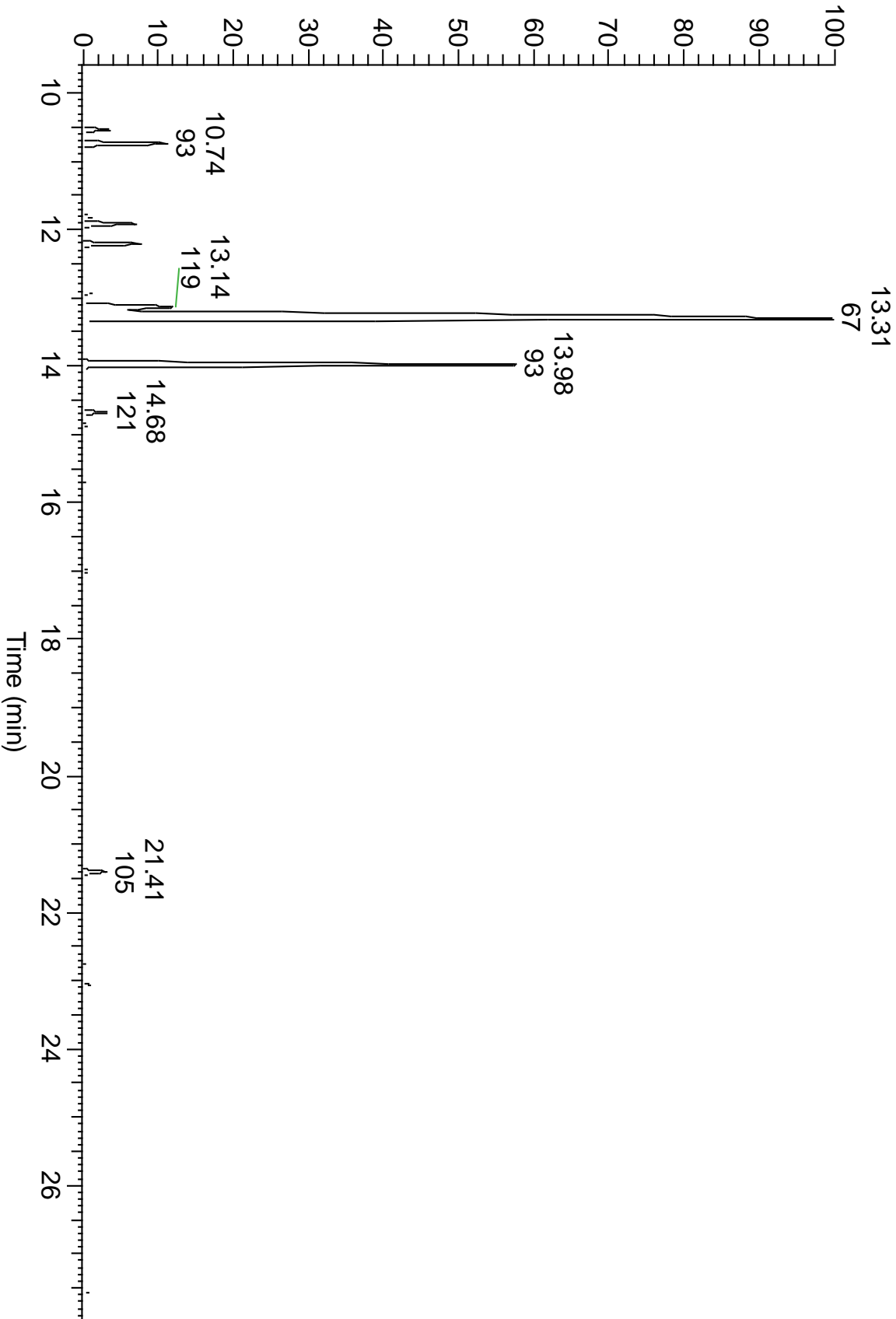
Monoterpenes	Sesquiterpenes	Monoterpenols	Sesquiterpenols	Ketones
96.70%	0.48%	0.51%	0.00%	0.00%
Esters	Ethers	Aldehydes	Phenols	Other
0.92%	0.27%	0.20%	0.00%	0.00%



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RT: 9.58 - 27.99







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Total Percentage	99.08%				
Peak Number	RT	Area %	Compound Name	RI	Chemical Family
1	10.54	1.08%	alpha-Thujene	927.80	Monoterpenes
2	10.74	3.51%	alpha-Pinene	936.10	Monoterpenes
3	11.16	0.09%	Camphene	953.30	Monoterpenes
4	11.81	0.37%	Sabinene	973.00	Monoterpenes
5	11.92	2.12%	beta-Pinene	977.70	Monoterpenes
6	12.21	2.18%	Myrcene	989.20	Monoterpenes
7	12.50	0.08%	Octanal	1002.43	Aldehydes
8	12.61	0.16%	alpha-Phellandrene	1004.10	Monoterpenes
9	12.92	0.46%	alpha-Terpinene	1017.10	Monoterpenes
10	13.14	4.96%	para-Cymene	1024.30	Monoterpenes
11	13.31	60.75%	Limonene	1029.50	Monoterpenes
12	13.65	0.07%	(E)-beta-Ocimene	1047.70	Monoterpenes
13	13.98	20.00%	gamma-Terpinene	1063.71	Monoterpenes
14	14.68	0.95%	Terpinolene	1089.43	Monoterpenes
15	14.86	0.15%	Linalool	1099.00	Monoterpenols
16	15.73	0.14%	cis-Limonene oxide	1137.50	Ethers
17	15.82	0.13%	trans-Limonene oxide	1138.10	Ethers
18	16.43	0.06%	beta-Terpineol	1160.00	Monoterpenols
19	17.00	0.21%	alpha-Terpineol	1191.71	Monoterpenols
20	17.20	0.08%	Decanal	1206.57	Aldehydes
21	18.58	0.04%	Geranial	1275.57	Aldehydes
22	18.98	0.09%	Thymol	1294.57	Monoterpenols
23	21.41	0.92%	Methyl N-methyl anthranilate	1420.50	Esters
24	21.75	0.13%	beta-Caryophyllene	1427.14	Sesquiterpenes
25	23.06	0.24%	(Z,E)-alpha-Farnesene	1500.50	Sesquiterpenes
26	23.11	0.07%	(E,E)-alpha-Farnesene	1508.14	Sesquiterpenes
27	23.51	0.04%	trans-Calamenene	1531.60	Sesquiterpenes