

Analytical Report	
Title	Orange Sweet Essential Oil Profile by GC-MS
Report No.	SE-37270-21
Issue Date	August 31, 2015
Notebook reference	III-29-75
Contributors:	
Quote No.	
Requester	Blue World Naturals LLC

Primary Aim

To identify GC amendable volatile organic compounds present in submitted **Cardamom** essential oil sample.

Samples

The sample arrived as clear liquid with characteristic odor labeled as "Orange Sweet lot 11104-a37".

Experimental:

1. Oil was dissolved in methanol to concentration of ~0.1%, 1 ul injected into the GC injector port.
2. GC conditions:
Injector temperature: 250 C
Initial oven temperature: 80 C
Ramp 10 C/min
Final temperature 220 C
Final temperature hold 5 min

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- MS parameters

Ionization and ion polarity	EI+
Scan rate	2 scans/sec
Mass range	35-350 Da
Ion source temperature	150C
Transfer line temperature	280C
- GC-MS analysis. Waters/Micromass Quatro GC mass spectrometer interfaced to a ThermoElectron Trace gas chromatograph was utilized for the analysis. 30m 0.25 mm ID DB-5 column was used to separate components. Carrier gas was helium at 1.1 ml/min with split ratio of 50.
- Data treatment.
For each sample, a set of target components was identified with the aid of the AMDIS software¹. The components were identified using the NIST mass spectral library².

Deliverables

- GC-MS chromatogram. GC-MS chromatogram is shown in Appendix I.
- Appendix II lists library search results.
 - RT Retention Time, time in minutes at which the compound elutes out of column
 - CAS. CAS registry number or EPA number.
 - Name. IUPAC or common name of identified compound.
 - Area. Peak area of a component in %% to total ion count

¹ <http://chemdata.nist.gov/mass-spc/amdis/>

² <http://www.nist.gov/srd/nist1a.cfm>

APPENDIX I
Orange Sweet
GC-MS Chromatogram

Sample "Orange Sweet"

OrangeSweet on D6-B lot 11184-437
081716_OrangeSweet



081716-110
3.0000

APPENDIX II
Orange Sweet
Identified Compounds

Orange Sweet

CAS	Name	R.T.	Area
80-56-8	alpha-pinene	3.192	0.3
3387415	Bicyclo[3.1.0]hexane, 4-methylene-1-(1-methylethyl)-	3.655	0.3
123353	β -Myrcene	3.802	1.4
3779611	1,3,6-Octatriene, 3,7-dimethyl-, (E)-	4.126	0.1
138863	Limonene	4.421	97.7
78706	1,6-Octadien-3-ol, 3,7-dimethyl-	5.417	0.2
112312	Decanal	6.97	0.0
4630073	Naphthalene, 1,2,3,5,6,7,8,8a-octahydro-1,8a-dimethyl-7-(1-methylethenyl)-, [1R-(1 α ,7 β ,8 $\alpha\alpha$)]	10.853	0.0