

Analytical Report	
Title	Oregano Essential Oil Profile by GC-MS
Report No.	SE-37270-22
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 "Oregano lot 50039-a11".

Experimental:

- Oil was dissolved in methanol to concentration of ~0.1%, 1 ul injected into the GC injector port.
- 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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3. 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

4. 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.

5. 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

1. GC-MS chromatogram. GC-MS chromatogram is shown in Appendix I.
2. 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

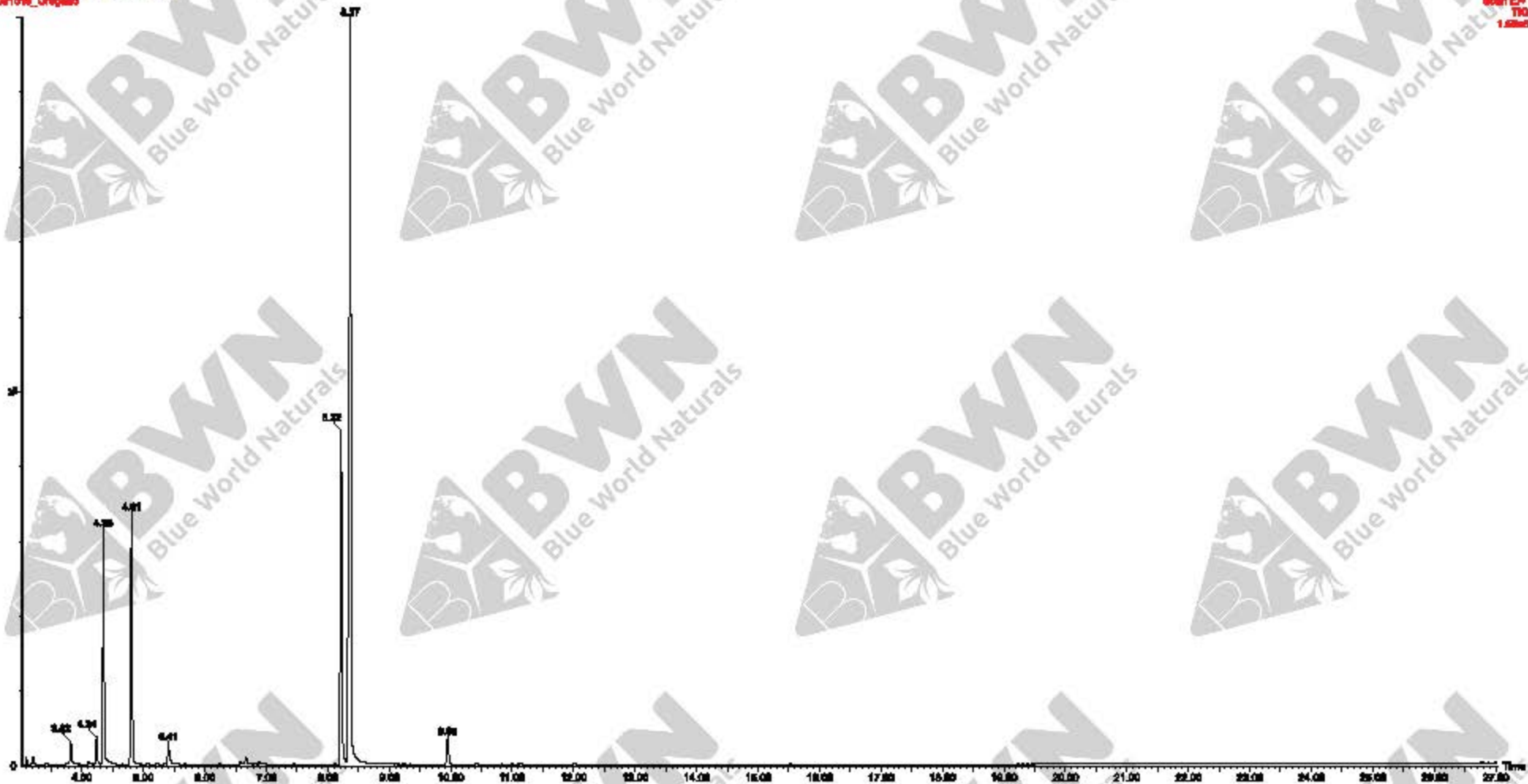
1 <http://chemdata.nist.gov/mass-spc/amdis/>

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

APPENDIX I
Oregano
GC-MS Chromatogram

Sample "Oregano"

Origine en OMS-8 lot 88038-411
081098_Oregano



APPENDIX II
Oregano
Identified Compounds

Oregano

CAS	Name	R.T.	Area
28634-89-1	Thujene	3.08	0.4
80-56-8	alpha-pinene	3.189	0.6
79925	Camphene	3.405	0.1
127913	beta-Pinene	3.744	0.1
123353	β -Myrcene	3.798	1.4
99832	α -Phellandrene	4.09	0.2
3387415	Bicyclo[3.1.0]hexane, 4-methylene-1-(1-methylethyl)-	4.124	0.0
586629	Cyclohexene, 1-methyl-4-(1-methylethylidene)-	4.221	1.5
527844	Benzene, 1-methyl-2-(1-methylethyl)-	4.331	13.9
5989548	Cyclohexene, 1-methyl-4-(1-methylethenyl)-, (S)-	4.398	0.2
5989548	Cyclohexene, 1-methyl-4-(1-methylethenyl)-, (S)-	4.398	0.1
99832	α -Phellandrene	4.44	0.2
99854	1,4-Cyclohexadiene, 1-methyl-4-(1-methylethyl)-	4.789	15.4
586630	Cyclohexene, 3-methyl-6-(1-methylethylidene)-	5.205	0.0
78706	1,8-Octadien-3-ol, 3,7-dimethyl-	5.39	1.8
464459	Bicyclo[2.2.1]heptan-2-ol, 1,7,7-trimethyl-, (1S-endo)-	6.558	0.2
562743	3-Cyclohexen-1-ol, 4-methyl-1-(1-methylethyl)-	6.649	0.6
EPA-157899	p-menth-1-en-8-ol	6.874	0.2
1076568	Benzene, 2-methoxy-4-methyl-1-(1-methylethyl)-	7.424	0.1
499752	Phenol, 2-methyl-5-(1-methylethyl)-	8.349	60.7
118650	Bicyclo[7.2.0]undec-4-ene, 4,11,11-trimethyl-8-methylene-, [1R-(1R*,4Z,9S*)]-	9.932	2.2
3338554	1,3-Octatriene, 3,7-dimethyl-, (Z)-	10.398	0.1
1139306	Caryophyllene oxide	11.989	0.1