

Analytical Report	
Title	Rosemary Spanish Essential Oil Profile by GC-MS
Report No.	SE-37270-25
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 "Rosemary Spanish lot 11125-b80".

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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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

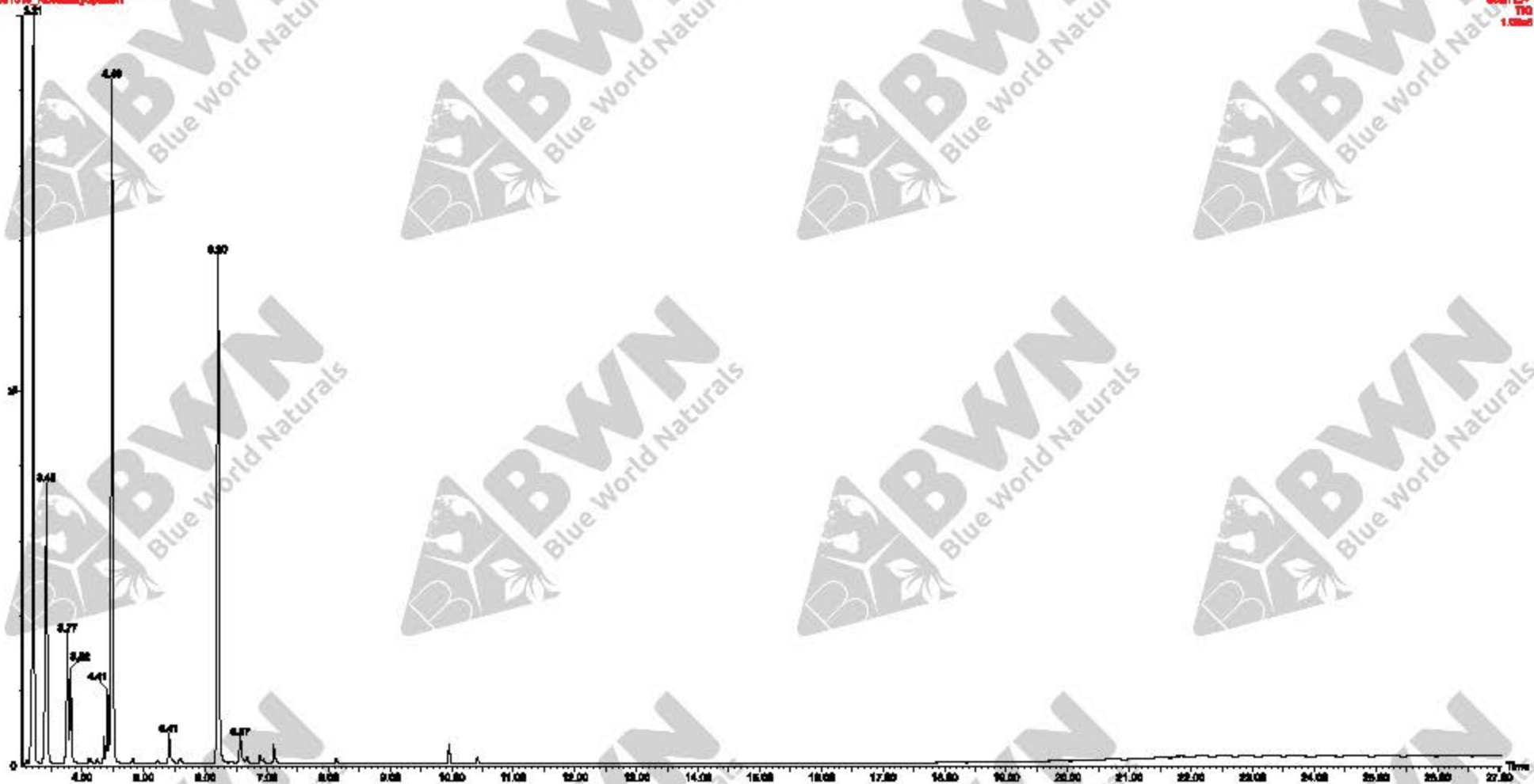
1 <http://chemdata.nist.gov/mass-spc/amdis/>

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

APPENDIX I
Rosemary Spanish
GC-MS Chromatogram

Sample "Rosemary Spanish"

Rosemary Spanish on DB-5 Int 11120-000
001918_RosemarySpanish



001918-100
1.0000

APPENDIX II
Rosemary Spanish
Identified Compounds

Rosemary Spanish

CAS	Name	R.T.	Area
28634-89-1	Thujene	3.081	0.2
80-56-8	alpha-pinene	3.189	23.6
79925	Camphene	3.403	11.7
127913	β -Pinene	3.744	4.3
106683	3-Octanone	3.774	0.3
123353	β -Myrcene	3.797	2.5
99832	α -Phellandrene	4.09	0.1
2437958	Bicyclo[3.1.1]hept-2-ene, 2 β β -trimethyl-, (\pm)-	4.126	0.1
99865	1,3-Cyclohexadiene, 1-methyl-4-(1-methylethyl)-	4.23	0.1
527844	Benzene, 1-methyl-2-(1-methylethyl)-	4.338	0.8
138863	Limonene	4.394	2.0
470826	Eucalyptol	4.469	25.3
99854	1,4-Cyclohexadiene, 1-methyl-4-(1-methylethyl)-	4.801	0.2
99805900	Cyclohexene, 4-methyl-3-(1-methylethylidene)-	5.204	0.1
78706	1 β -Octadien-3-ol, 3,7-dimethyl-	5.393	1.2
464482	Bicyclo[2.2.1]heptan-2-one, 1,7,7-trimethyl-, (1S)-	5.572	0.2
76-22-2	Camphor	6.19	23.6
4058519	3,4-Pentadienal, 2,2-dimethyl-	6.417	0.0
124765	Isoborneol	6.55	1.2
562743	3-Cyclohexen-1-ol, 4-methyl-1-(1-methylethyl)-	6.652	0.2
98-55-5	Terpineol	6.867	0.3
1196016	Bicyclo[3.1.1]hept-3-en-2-one, 4 β β -trimethyl-, (1S)-	7.094	0.7
92618898	Acetic acid, 1,7,7-trimethyl-bicyclo[2.2.1]hept-2-yl ester	8.101	0.2
118650	Bicyclo[7.2.0]undec-4-ene, 4,11,11-trimethyl-8-methylene-, [1R-(1R*,4Z,9S*)]-	9.935	0.7
502998	1,3,7-Octatriene, 3,7-dimethyl-	10.399	0.2