

Sample Information

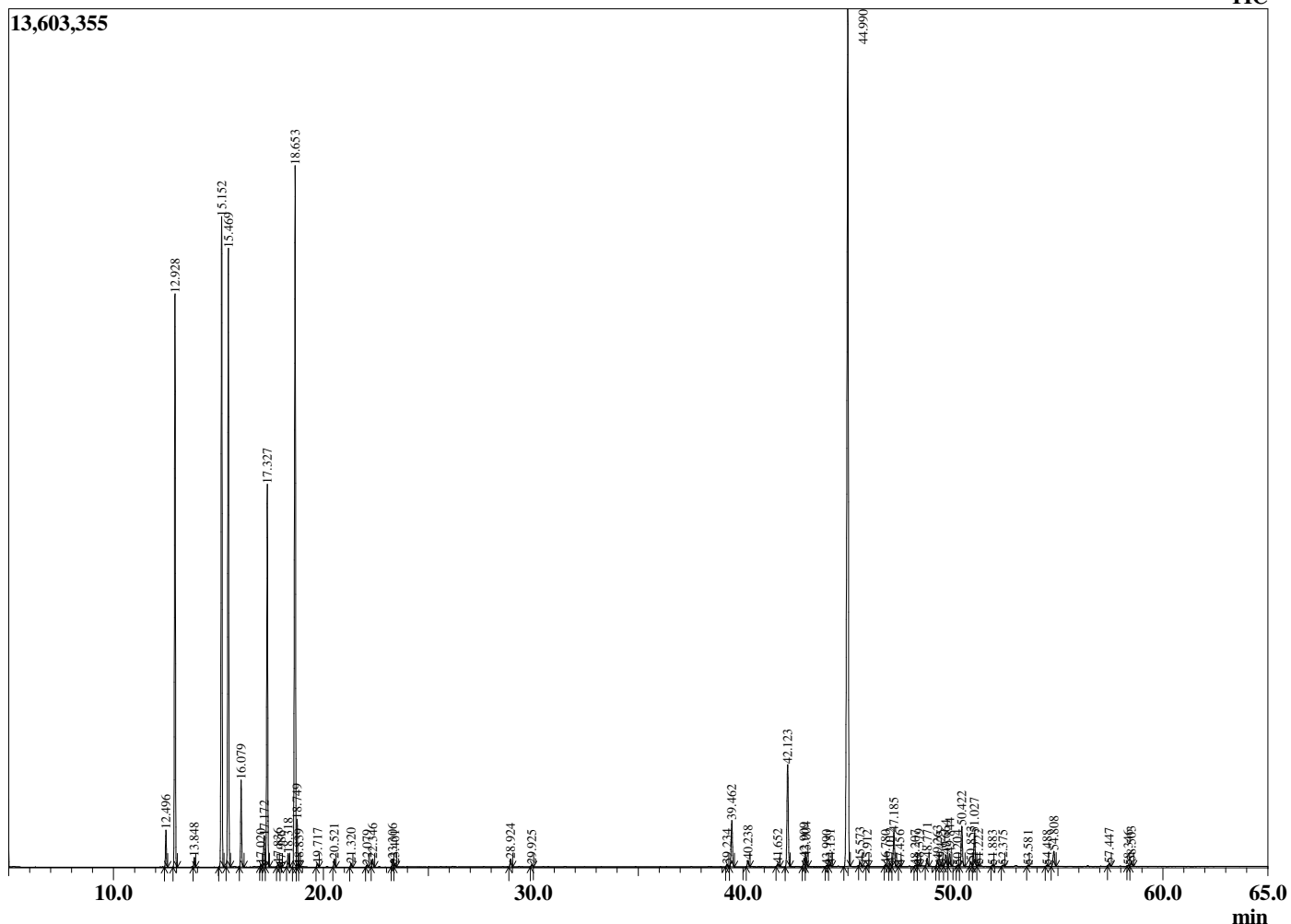
Analyzed by : Dr. Robert S. Pappas
 Analyzed : 11/11/2018 9:29:35 PM
 Sample Type : Essential Oil
 Sample Name : Black Pepper, Sri Lanka
 Sample ID : A1219B
 Injection Volume : 0.10
 Instrument ID : GC-4



Peak Report TIC

R.Time	Name	Area%
12.496	alpha-Thujene	0.65
12.928	alpha-Pinene	10.52
13.848	Camphene	0.18
15.152	Sabinene	13.09
15.469	beta-Pinene	12.14
16.079	Myrcene	1.71
17.020	Pseudolimonene	0.04
17.172	alpha-Phellandrene	0.63
17.327	delta-3-Carene	7.73
17.836	alpha-Terpinene	0.07
17.986	ortho-Cymene	0.01
18.318	para-Cymene	0.29
18.653	Limonene	15.67
18.749	beta-Phellandrene	0.89
18.839	1,8-Cineole	0.04
19.717	trans-beta-Ocimene	0.08
20.521	gamma-Terpinene	0.17
21.320	trans-Sabinene hydrate	0.09
22.079	Terpinolene isomer	0.05
22.346	Terpinolene	0.18
23.306	Linalool	0.18
23.401	cis-Sabinene hydrate	0.05
28.924	Terpinen-4-ol	0.20
29.925	alpha-Terpineol	0.05
39.234	Elemene isomer	0.06
39.462	delta-Elemene	1.20
40.238	alpha-Cubebene	0.16
41.652	Isoledene	0.08
42.123	alpha-Copaene	2.75
42.909	beta-Cubebene	0.23
43.004	beta-Elemene	0.25
43.990	cis-beta-Caryophyllene	0.03
44.151	alpha-Gurjunene	0.06
44.990	beta-Caryophyllene	25.09
45.573	beta-Copaene	0.10
45.912	alpha-Guaiene	0.04
46.780	cis-Murrola-3,5-diene	0.04
47.012	trans-beta-Farnesene	0.08
47.185	alpha-Humulene	0.90
47.456	Alloaromadendrene	0.02
48.207	10-beta-H-Cadina-1(6),4-diene	0.03
48.379	trans-Cadina-1(6),4-diene	0.04
48.771	Germacrene D	0.20
49.263	beta-Selinene	0.15
49.425	trans-Muurolo-4(14),5-diene	0.06
49.664	Bicyclogermacrene	0.37
49.844	alpha-Muuroloene	0.35
50.204	(E,E)-alpha-Farnesene	0.02
50.422	beta-Bisabolene	1.10
50.853	gamma-Cadinene	0.12
51.027	delta-Cadinene	0.89
51.222	cis-Calamenene	0.04
51.883	trans-Cadine-1,4-diene	0.04
52.375	cis-alpha-Bisabolene	0.04
53.581	trans-Nerolidol	0.02
54.488	Spathulenol	0.03
54.808	Caryophyllene oxide	0.47
57.447	Unidentified	0.07
58.346	epi-alpha-Cadinol	0.02
58.503	delta-Cadinol	0.13
		100.00

Chromatogram Black pepper, Sri Lanka



Comments:

The analysis of this Black Pepper, Sri Lanka batch sample meets the expected chemical profile for authentic essential oil of

Piper nigrum. No contamination or adulteration was detected.

The results provided in this GCMS quality analysis reflect the chemical composition of the oil and lot referenced above on the date of analysis.