

Sample Information

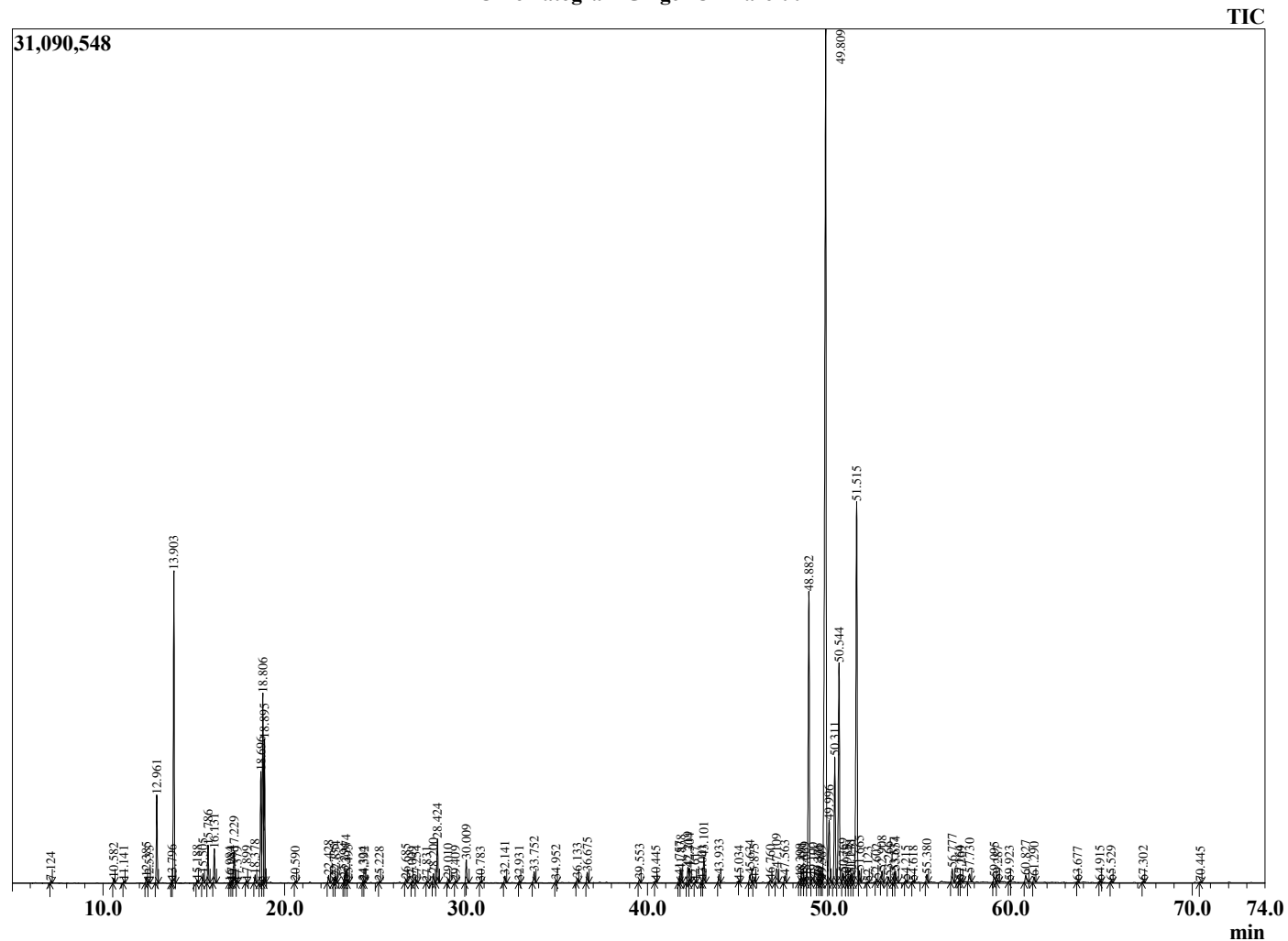
Analyzed by : Dr. Robert S. Pappas
 Analyzed : 12/12/2020 6:46:53 PM
 Sample Type : Essential Oil
 Sample Name : Ginger Oil-Barefut
 Sample ID : 0105
 Injection Volume : 0.10
 Instrument ID: : GC-3



Peak Report TIC

| R.Time | Name | Area% |
|--------|--------------------------|-------|
| 7.124 | Hexanal | 0.06 |
| 10.582 | Heptan-2-one | 0.10 |
| 11.141 | Heptan-2-ol | 0.04 |
| 12.385 | Tricyclene | 0.13 |
| 12.533 | alpha-Thujene | 0.04 |
| 12.961 | alpha-Pinene | 1.95 |
| 13.796 | alpha-Fenchene | 0.05 |
| 13.903 | Camphene | 6.95 |
| 15.188 | Sabinene | 0.06 |
| 15.505 | beta-Pinene | 0.20 |
| 15.786 | 6-methyl hept-5-en-2-one | 0.81 |
| 16.131 | Myrcene | 0.77 |
| 16.984 | Octanal | 0.02 |
| 17.084 | Unidentified | 0.05 |
| 17.229 | alpha-Phellandrene | 0.75 |
| 17.379 | delta-3-Carene | 0.02 |
| 17.899 | alpha-Terpinene | 0.04 |
| 18.378 | para-Cymene | 0.18 |
| 18.696 | Limonene | 2.72 |
| 18.806 | beta-Phellandrene | 4.58 |
| 18.895 | 1,8-Cineole | 3.03 |
| 20.590 | gamma-Terpinene | 0.03 |
| 22.428 | Terpinolene | 0.18 |
| 22.735 | 2-Nonanone | 0.10 |
| 22.834 | Rosefuran | 0.16 |
| 23.294 | Unidentified | 0.10 |
| 23.374 | Linalool | 0.32 |
| 23.493 | Nonan-2-ol | 0.06 |
| 24.324 | Unidentified | 0.03 |
| 24.392 | Unidentified | 0.02 |
| 25.228 | Unidentified | 0.02 |
| 26.685 | Camphor | 0.09 |
| 27.009 | Citronellal | 0.02 |
| 27.254 | trans-beta-Terpineol | 0.06 |
| 27.831 | Unidentified | 0.02 |
| 28.200 | Isoborneol | 0.22 |
| 28.424 | Borneol | 1.14 |
| 29.010 | Terpinen-4-ol | 0.11 |
| 29.409 | para-Cymen-8-ol | 0.04 |
| 30.009 | alpha-Terpineol | 0.64 |
| 30.783 | Decanal | 0.03 |
| 32.141 | Citronellol | 0.18 |
| 32.931 | Neral | 0.04 |
| 33.752 | Geraniol | 0.32 |
| 34.952 | Geranial | 0.07 |
| 36.133 | Bornyl acetate | 0.11 |
| 36.675 | Nonyl methyl ketone | 0.28 |
| 39.553 | delta-Elementene | 0.09 |
| 40.445 | Citronellyl acetate | 0.04 |
| 41.757 | Isoledene | 0.16 |
| 41.838 | Unidentified | 0.38 |
| 42.219 | alpha-Copaene | 0.45 |
| 42.304 | Geranyl acetate | 0.38 |
| 42.617 | Unidentified | 0.02 |
| 43.001 | Unidentified | 0.06 |
| 43.101 | beta-Elementene | 0.73 |
| 43.933 | Sesquithujene isomer | 0.23 |
| 45.034 | trans-beta-Caryophyllene | 0.03 |
| 45.634 | gamma-Elementene | 0.25 |
| 45.875 | trans-alpha-Bergamotene | 0.10 |
| 46.760 | Unidentified | 0.07 |
| 47.109 | (E)-beta-Farnesene | 0.56 |

Chromatogram Ginger Oil-Barefut



Comments:

The analysis of this Ginger batch sample meets the expected chemical profile for authentic essential oil of *Zingiber officinale*. 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.

| R.Time | Name | Area% |
|--------|------------------------------|--------|
| 47.563 | Alloaromadendrene | 0.21 |
| 48.398 | Unidentified | 0.12 |
| 48.491 | trans-Cadina-1(6),4-diene | 0.18 |
| 48.669 | gamma-Curcumene | 0.16 |
| 48.882 | Ar-Curcumene | 8.52 |
| 49.100 | beta-Chamigrene | 0.20 |
| 49.376 | beta-Selinene | 0.10 |
| 49.491 | (Z,Z)-alpha-Farnesene | 0.09 |
| 49.589 | Unidentified | 0.05 |
| 49.809 | alpha-Zingiberene | 31.47 |
| 49.996 | trans-Muurolo-4(14),5-diene | 1.95 |
| 50.311 | (E,E)-alpha-Farnesene | 3.59 |
| 50.544 | beta-Bisabolene | 6.52 |
| 50.769 | Unidentified | 0.31 |
| 50.975 | Cubebol | 0.07 |
| 51.148 | delta-Cadinene | 0.19 |
| 51.231 | alpha-Panasinsen | 0.27 |
| 51.515 | beta-Sesquiphellandrene | 11.99 |
| 51.665 | (E)-gamma-Bisabolene | 0.32 |
| 52.123 | Unidentified | 0.01 |
| 52.602 | Unidentified | 0.09 |
| 52.908 | alpha-Elemol | 0.31 |
| 53.266 | cis-Sesquisabinene hydrate | 0.16 |
| 53.577 | Germacrene B | 0.31 |
| 53.654 | trans-Nerolidol | 0.37 |
| 54.215 | Unidentified | 0.06 |
| 54.618 | Unidentified | 0.04 |
| 55.380 | trans-Sesquisabinene hydrate | 0.22 |
| 56.777 | Zingiberenol isomer | 0.40 |
| 57.164 | Unidentified | 0.05 |
| 57.269 | 10-epi-gamma-Eudesmol | 0.04 |
| 57.730 | Zingiberenol isomer | 0.29 |
| 59.095 | beta-Eudesmol | 0.19 |
| 59.287 | Unidentified | 0.07 |
| 59.923 | beta-Bisabolol | 0.03 |
| 60.827 | alpha-Bisabolol | 0.25 |
| 61.290 | (2Z,6Z)-Farnesol | 0.16 |
| 63.677 | Unidentified | 0.02 |
| 64.915 | Unidentified | 0.04 |
| 65.529 | Unidentified | 0.04 |
| 67.302 | Unidentified | 0.03 |
| 70.445 | Unidentified | 0.02 |
| | | 100.00 |