



Essential Validation Services





Sample:

Client: | Nature's Fusions
Sample: | Citronella Java (Cymbopogon winterianus)
Batch # | MM4223303
CAS Number | 8000-29-1
Type: | Essential Oil

Conclusion:

- No adulterants, diluents, or contaminants were detected via this method.



X *Adam Christen*

Validated By:

Essential Validation Services

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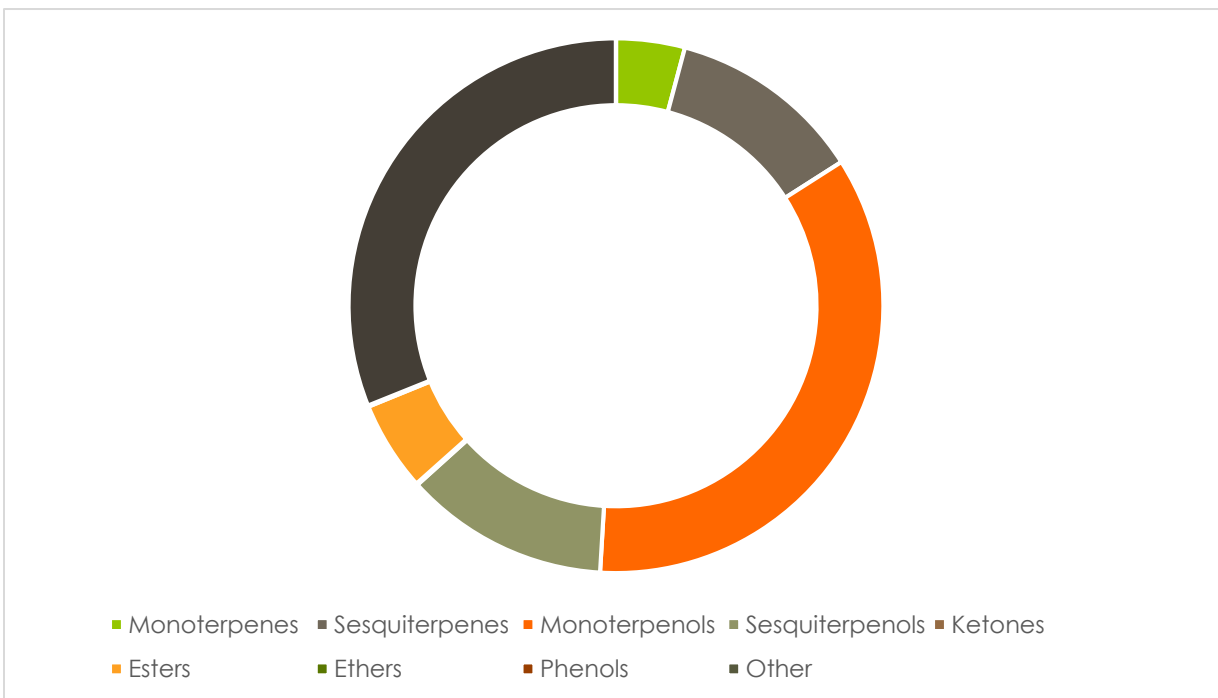
Summary of Analyses

A fresh sample of Citronella Java (Cymbopogon winterianus) Essential Oil (10 uL in .5to.5 mL Hexane + ETOH) was prepared and analyzed via split injection GC/EI-MS.



| Main Compounds | Percentages |
|---------------------|-------------|
| Citronellal | 29.89% |
| Geraniol | 19.55% |
| Citronellol | 13.49% |
| delta-Cadinene | 4.33% |
| Limonene | 3.90% |
| beta-Elemene | 1.98% |
| Citronellyl acetate | 1.96% |
| Geranyl acetate | 1.90% |
| Neryl acetate | 1.50% |
| gamma-Cadinene | 1.26% |
| alpha-Muurolene | 1.15% |
| Germacrene D | 1.06% |
| Neoisopulegol | 0.85% |

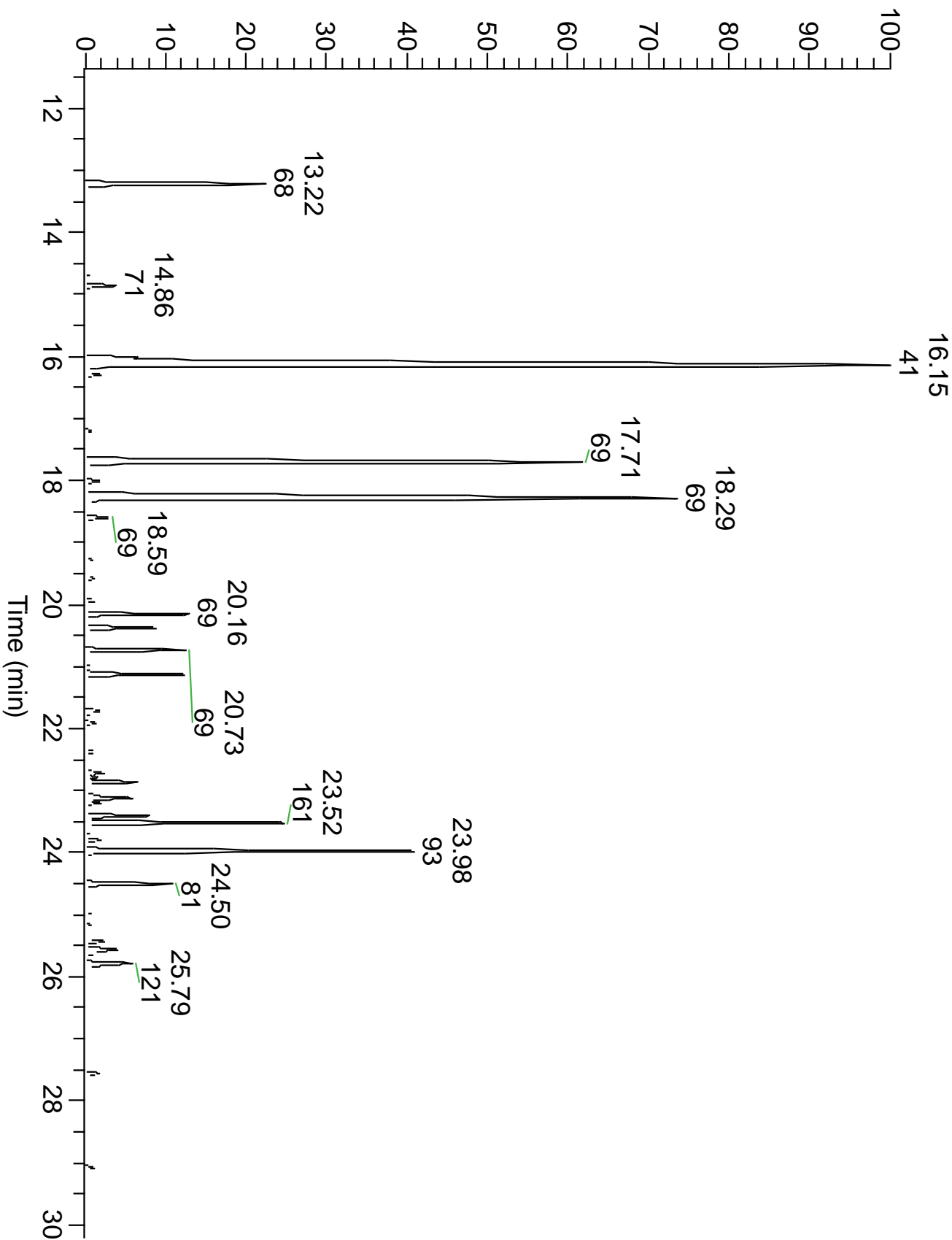
| Monoterpenes | Sesquiterpenes | Monoterpenols | Sesquiterpenols | Ketones |
|--------------|----------------|---------------|-----------------|---------|
| 4.13% | 11.73% | 34.76% | 12.29% | 0.09% |
| Esters | Ethers | Aldehydes | Phenols | Other |
| 5.39% | 0.07% | 30.89% | 0.00% | 0.00% |



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RT: 11.35 - 30.32



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| Total Percentage | 99.35% | | | | |
|------------------|--------|------------|-------------------------|---------|-----------------|
| Peak Number | RT | Area % | Compound Name | RI | Chemical Family |
| 1 | 10.73 | 0.02% | alpha-Pinene | 936.10 | Monoterpenes |
| 2 | 12.08 | 0.06% | 6-Methyl-5-hepten-2-one | 985.90 | Ketones |
| 3 | 12.20 | 0.11% | Myrcene | 989.20 | Monoterpenes |
| 4 | 12.60 | 0.04% | alpha-Phellandrene | 1004.10 | Monoterpenes |
| 5 | 13.22 | 3.90% | Limonene | 1029.50 | Monoterpenes |
| 6 | 13.22 | Co-Eluting | beta-Phellandrene | 1030.00 | Monoterpenes |
| 7 | 13.22 | Co-Eluting | 1,8-Cineole | 1031.80 | Ethers |
| 8 | 13.77 | 0.06% | 2,6-Dimethyl-5-heptenal | 1056.00 | Aldehydes |
| 9 | 14.67 | 0.06% | Terpinolene | 1089.43 | Monoterpenes |
| 10 | 14.86 | 0.62% | Linalool | 1099.00 | Monoterpenols |
| 11 | 15.51 | 0.07% | cis-Rose oxide | 1114.00 | Ethers |
| 12 | 16.02 | 0.85% | Neoisopulegol | 1145.10 | Monoterpenols |
| 13 | 16.15 | 29.89% | Citronellal | 1158.43 | Aldehydes |
| 14 | 16.15 | Co-Eluting | Isopulegol | 1155.00 | Monoterpenols |
| 15 | 16.48 | 0.03% | Isomenthone | 1164.33 | Ketones |
| 16 | 16.57 | 0.06% | Borneol | 1168.71 | Monoterpenols |
| 17 | 16.76 | 0.07% | Terpinen-4-ol | 1180.57 | Monoterpenols |
| 18 | 16.97 | 0.12% | alpha-Terpineol | 1191.71 | Monoterpenols |
| 19 | 17.20 | 0.13% | Decanal | 1206.57 | Aldehydes |
| 20 | 17.71 | 13.49% | Citronellol | 1230.10 | Monoterpenols |
| 21 | 18.01 | 0.30% | Neral | 1246.57 | Aldehydes |
| 22 | 18.29 | 19.55% | Geraniol | 1258.29 | Monoterpenols |
| 23 | 18.59 | 0.51% | Geranial | 1275.57 | Aldehydes |
| 24 | 19.19 | 0.03% | Geranyl formate | 1304.50 | Esters |
| 25 | 20.16 | 1.96% | Citronellyl acetate | 1357.83 | Esters |
| 26 | 20.38 | 1.50% | Neryl acetate | 1362.90 | Esters |
| 27 | 20.73 | 1.90% | Geranyl acetate | 1384.71 | Esters |
| 28 | 20.99 | 0.11% | beta-Cubebene | 1390.50 | Sesquiterpenes |
| 29 | 21.13 | 1.98% | beta-Elemene | 1388.30 | Sesquiterpenes |
| 30 | 21.13 | Co-Eluting | beta-Cubebene | 1390.50 | Sesquiterpenes |
| 31 | 21.71 | 0.38% | beta-Caryophyllene | 1427.14 | Sesquiterpenes |
| 32 | 21.91 | 0.21% | beta-Copaene | 1445.00 | Sesquiterpenes |
| 33 | 22.19 | 0.09% | cis-Muurola-3,5-diene | 1453.00 | Sesquiterpenes |
| 34 | 22.38 | 0.23% | alpha-Humulene | 1461.43 | Sesquiterpenes |
| 35 | 22.52 | 0.06% | allo-Aromadendrene | 1471.00 | Sesquiterpenes |
| 36 | 22.72 | 0.42% | gamma-Murolene | 1478.86 | Sesquiterpenes |
| 37 | 22.86 | 1.06% | Germacrene D | 1484.71 | Sesquiterpenes |
| 38 | 22.98 | 0.07% | beta-Selinene | 1487.57 | Sesquiterpenes |
| 39 | 23.12 | 1.15% | alpha-Murolene | 1501.14 | Sesquiterpenes |
| 40 | 23.20 | 0.29% | Cubebol | 1515.10 | Sesquiterpenols |
| 41 | 23.41 | 1.26% | gamma-Cadinene | 1515.29 | Sesquiterpenes |
| 42 | 23.52 | 4.33% | delta-Cadinene | 1524.14 | Sesquiterpenes |

