

GC-MS Profiling Analysis Prepared for Jade Bloom, Inc

Date: April 23, 2018
Sample: Cinnamon
 Bark Ceylon
Type: Essential Oil
Source: *Cinnamomum zeylanicum*
Batch: 1800152018

ANALYSIS SUMMARY

| Identification | DB-5 (%) | DB-WAX (%) | Classe |
|-------------------------------------|----------|------------|----------------------|
| Toluene | tr | tr | Simple phenolic |
| Hexanal | tr | tr | Aliphatic aldehyde |
| Ethyl 2-methylbutyrate | tr | tr | Aliphatic ester |
| Styrene | 0.03 | 0.03 | Simple phenolic |
| Tricyclene | 0.01 | 0.01 | Monoterpene |
| α -Thujene | 0.16 | 0.16 | Monoterpene |
| α -Pinene | 1.12 | 1.10 | Monoterpene |
| Camphene | 0.41* | 0.38 | Monoterpene |
| α -Fenchene | [0.41]* | 0.01 | Monoterpene |
| Benzaldehyde | 0.16 | 0.16 | Simple phenolic |
| Sabinene | 0.41* | 0.03 | Monoterpene |
| β -Pinene | [0.41]* | 0.38 | Monoterpene |
| 6-Methyl-5-hepten-2-one | 0.01 | tr | Aliphatic ketone |
| Myrcene | 0.16 | 0.16 | Monoterpene |
| α -Phellandrene | 1.41 | 1.38 | Monoterpene |
| Δ 3-Carene | 0.11 | 0.10 | Monoterpene |
| α -Terpinene | 0.20 | 0.19 | Monoterpene |
| ortho-Cymene | 0.02 | 1.11* | Simple phenolic |
| para-Cymene | 1.13 | [1.11]* | Monoterpene |
| β -Phellandrene | 1.33* | 0.85* | Monoterpene |
| 1,8-Cineole | [1.33]* | [0.85]* | Monoterpenic ether |
| Limonene | [1.33]* | 0.45 | Monoterpene |
| Benzyl alcohol | 0.01 | 0.27* | Simple phenolic |
| (Z)- β -Ocimene | 0.03 | 0.04 | Monoterpene |
| (E)- β -Ocimene | 0.06 | 0.06 | Monoterpene |
| γ -Terpinene | 0.05 | 0.05 | Monoterpene |
| cis-Sabinene hydrate | tr | tr | Monoterpenic alcohol |
| cis-Linalool oxide (fur.) | 0.01 | 0.01 | Monoterpenic alcohol |
| Isoterpinolene | 0.01 | 0.01 | Monoterpene |
| trans-Linalool oxide (fur.) | 0.16* | tr | Monoterpenic alcohol |
| para-Cymenene | [0.16]* | 0.02 | Monoterpene |
| Terpinolene | [0.16]* | 0.12 | Monoterpene |
| Linalool | 2.59 | 2.55 | Monoterpenic alcohol |
| (3E)-2,7-Dimethyl-3,6-octadien-2-ol | 0.03 | | Monoterpenic alcohol |
| Phenylethyl alcohol | tr | tr | Simple phenolic |
| cis-para-Menth-2-en-1-ol | 0.01 | 0.01 | Monoterpenic alcohol |
| Camphor | 0.01 | 0.01 | Monoterpenic ketone |
| Hydrocinnamal | 0.23 | 0.15 | Phenylpropanoid |
| Benzyl acetate | 0.03 | 0.01 | Phenolic ester |
| Borneol | 0.02 | 0.16* | Monoterpenic alcohol |
| Terpinen-4-ol | 0.06 | 0.05 | Monoterpenic alcohol |
| para-Cymen-8-ol | tr | 0.01 | Monoterpenic alcohol |
| α -Terpineol | 0.13 | [0.16]* | Monoterpenic alcohol |
| α -Phellandrene epoxide | 0.02 | 0.02 | Monoterpenic ether |
| (Z)-Cinnamal | 0.27 | [0.27]* | Phenylpropanoid |
| Hydrocinnamyl alcohol | 0.03 | 0.11 | Phenylpropanoid |
| ortho-Anisaldehyde | 0.01 | 0.07 | Simple phenolic |
| Safrole | 69.04* | 0.17 | Phenylpropanoid |

| | | | |
|----------------------------------|---------------|---------------|------------------------|
| (E)-Cinnamal | [69.04]* | 69.49 | Phenylpropanoid |
| (E)-Cinnamyl alcohol | 0.08 | 0.07 | Phenylpropanoid |
| Carvacrol | 0.01 | 0.02 | Monoterpenic alcohol |
| α -Cubebene | 0.01 | 0.01 | Sesquiterpene |
| Eugenol | 7.47 | 7.53 | Phenylpropanoid |
| α -Copaene | 0.26 | 0.25 | Sesquiterpene |
| <i>cis</i> - β -Elemene | tr | tr | Sesquiterpene |
| β -Cubebene | tr | tr | Sesquiterpene |
| β -Elemene | 0.03 | 3.92* | Sesquiterpene |
| α -Gurjunene | 0.01 | tr | Sesquiterpene |
| Methyleugenol | 0.01 | | Phenylpropanoid |
| β -Caryophyllene | 4.02 | [3.92]* | Sesquiterpene |
| Caryophylla-4(12),8(13)-diene | 0.01 | 0.01 | Sesquiterpene |
| (E)-Cinnamic acid | 0.03 | 0.02* | Phenylpropanoid |
| α -Humulene | 6.57* | 0.25* | Sesquiterpene |
| (E)-Cinnamyl acetate | [6.57]* | 6.29 | Phenylpropanoid ester |
| allo-Aromadrene | 0.02 | 0.02 | Sesquiterpene |
| γ -Gurjunene | tr | 0.01 | Sesquiterpene |
| <i>trans</i> -Cadin-1(6),4-diene | tr | [0.25]* | Sesquiterpene |
| γ -Murolene | 0.01 | 0.01 | Sesquiterpene |
| Germacrene D | tr | tr | Sesquiterpene |
| Bicyclogermacrene | 0.03* | 0.01 | Sesquiterpene |
| Viridiflorene | [0.03]* | tr | Sesquiterpene |
| α -Murolene | tr | 0.01 | Sesquiterpene |
| 2,3-Epoxycinnamyl acetate I? | 0.01 | 0.01 | Phenylpropanoid ester |
| γ -Cadinene | 0.02 | 0.04 | Sesquiterpene |
| Cubebol | 0.01 | 0.02 | Sesquiterpenic alcohol |
| <i>trans</i> -Calamenene | 0.02* | 0.02 | Sesquiterpene |
| δ -Cadinene | [0.02]* | 0.01 | Sesquiterpene |
| <i>trans</i> -Cadin-1,4-diene | 0.12* | 0.02 | Sesquiterpene |
| Eugenyl acetate | [0.12]* | 0.12 | Phenylpropanoid ester |
| (E)-ortho-Methoxycinnamal | tr | 0.03 | Phenylpropanoid |
| α -Calacorene | 0.01 | 0.02 | Sesquiterpene |
| Isocaryophyllene epoxide B | 0.01 | 0.01 | Sesquiterpenic ether |
| Unknown | 0.01 | [0.02]* | Phenylpropanoid |
| β -Calacorene | 0.04* | 0.01 | Sesquiterpene |
| Caryophyllenyl alcohol | [0.04]* | 0.03 | Sesquiterpenic alcohol |
| Spathulenol | 0.01 | 0.02 | Sesquiterpenic alcohol |
| Caryophyllene oxide | 0.16* | 0.12 | Sesquiterpenic ether |
| Caryophyllene oxide isomer | [0.16]* | 0.01 | Sesquiterpenic ether |
| Humulene epoxide II | 0.02 | | Sesquiterpenic ether |
| Tetradecanal | 0.05 | | Aliphatic aldehyde |
| 1,10-diepi-Cubenol | tr | | Sesquiterpenic alcohol |
| τ -Cadinol | 0.01 | 0.02 | Sesquiterpenic alcohol |
| Unknown | tr | 0.01 | Sesquiterpenic alcohol |
| (E)-Coniferyl alcohol | tr | tr | Phenylpropanoid |
| Benzyl benzoate | 0.40 | 0.41 | Phenolic ester |
| Phenylethyl benzoate | 0.01 | 0.01 | Phenolic ester |
| Unknown | 0.02 | | Unknown |
| Unknown | 0.02 | | Lignan |
| Unknown | tr | | Lignan |
| Total identified | 98.95% | 99.26% | |

PHYSICOCHEMICAL DATA

Physical aspect: Light yellow liquid

Refractive index: 1.5843 \pm 0.0003 (20 °C)

CONCLUSION

No adulterant, contaminant or diluent has been detected using this method.

