

**Date :** October 18, 2019

**CERTIFICATE OF ANALYSIS – GC PROFILING**

*SAMPLE IDENTIFICATION*

**Internal code :** 19E28-PTH04-1-SCC

**Customer identification :** Copaiba Balsam Org - Brazil - CB710386R

**Type :** Essential oil

**Source :** *Copaifera officinalis*

**Customer :** Plant Therapy

*ANALYSIS*

**Method:** PC-PA-014-17J19 - Analysis of the composition of an essential oil, or other volatile liquid, by FAST GC-FID (in French); identifications validated by GC-MS.

**Analyst :** Sylvain Mercier, M. Sc., Chimiste

**Analysis date :** May 28, 2019

Checked and approved by :

---

Alexis St-Gelais, M. Sc., chimiste 2013-174

*Note: This report may not be published, including online, without the written consent from Laboratoire PhytoChemia.*

*This report is digitally signed, it is only considered valid if the digital signature is intact.*

*This report is an update of a version first issued on May 29, 2019, to correct a typographical mistake.*

*PHYSICOCHEMICAL DATA*

**Physical aspect:** Orange liquid

**Refractive index:**  $1.5060 \pm 0.0003$  (20 °C)

*CONCLUSION*

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

## ANALYSIS SUMMARY

| Identification                       | DB-5 (%) | DB-WAX (%) | Classe                 |
|--------------------------------------|----------|------------|------------------------|
| Myrcene                              | tr       | tr         | Monoterpene            |
| (2E,4E)-3,7-Dimethylocta-2,4-diene?  | 0.02     | 0.01       | Monoterpene            |
| (Z)- $\beta$ -Ocimene                | 0.10     | 0.10       | Monoterpene            |
| (E)- $\beta$ -Ocimene                | 0.01     | 0.01       | Monoterpene            |
| allo-Ocimene                         | 0.02     | 0.02       | Monoterpene            |
| $\delta$ -Elemene isomer             | 0.02     | 0.02       | Sesquiterpene          |
| $\delta$ -Elemene                    | 0.24     | 0.21       | Sesquiterpene          |
| $\alpha$ -Cubebene                   | 0.56     | 0.56       | Sesquiterpene          |
| Cyclosativene I                      | 0.02     | 0.01       | Sesquiterpene          |
| Cyclosativene II                     | 0.02     | 0.02       | Sesquiterpene          |
| $\alpha$ -Ylangene                   | 0.07     | 0.08       | Sesquiterpene          |
| $\alpha$ -Copaene                    | 4.05     | 4.21       | Sesquiterpene          |
| <i>cis</i> - $\beta$ -Elemene        | 0.03     | 0.12       | Sesquiterpene          |
| 7-epi-Sesquithujene                  | 0.05     | 0.07       | Sesquiterpene          |
| $\beta$ -Cubebene                    | 0.37     | 0.40       | Sesquiterpene          |
| $\beta$ -Elemene                     | 0.97     | 46.14*     | Sesquiterpene          |
| Cyperene                             | 0.23     | 0.20       | Sesquiterpene          |
| $\alpha$ -Gurjunene                  | 0.03     | 0.04       | Sesquiterpene          |
| Sesquithujene                        | 0.07     | 0.08       | Sesquiterpene          |
| $\beta$ -Caryophyllene               | 39.06*   | [46.14]*   | Sesquiterpene          |
| $\beta$ -Copaene                     | [39.06]* | 0.02       | Sesquiterpene          |
| $\beta$ -Ylangene                    | [39.06]* | 0.07       | Sesquiterpene          |
| $\gamma$ -Elemene                    | 0.28     | 0.26       | Sesquiterpene          |
| <i>trans</i> - $\alpha$ -Bergamotene | 3.94*    | [46.14]*   | Sesquiterpene          |
| Aromadendrene                        | [3.94]*  | 0.16       | Sesquiterpene          |
| Sesquisabinene A                     | 0.29     | 0.27       | Sesquiterpene          |
| $\alpha$ -Humulene                   | 5.34     | 5.71*      | Sesquiterpene          |
| allo-Aromadendrene                   | 0.40     | 0.44       | Sesquiterpene          |
| <i>cis</i> -Muurolo-4(15),5-diene    | 0.28*    | [5.71]*    | Sesquiterpene          |
| (E)- $\beta$ -Farnesene              | [0.28]*  | 0.22*      | Sesquiterpene          |
| <i>trans</i> -Cadina-1(6),4-diene    | 0.24*    | 0.05       | Sesquiterpene          |
| $\gamma$ -Muurolole                  | [0.24]*  | [0.22]*    | Sesquiterpene          |
| Germacrene D                         | 6.84     | 5.92       | Sesquiterpene          |
| $\beta$ -Selinene                    | 1.54*    | 1.37       | Sesquiterpene          |
| <i>ar</i> -Curcumene                 | [1.54]*  | [0.30]*    | Sesquiterpene          |
| $\delta$ -Selinene                   | 0.11     | 0.13       | Sesquiterpene          |
| $\alpha$ -Selinene                   | 1.50*    | 1.00       | Sesquiterpene          |
| Viridiflorene                        | [1.50]*  | 1.65       | Sesquiterpene          |
| Bicyclogermacrene                    | [1.50]*  | 0.52       | Sesquiterpene          |
| epi-Cubebol                          | [1.50]*  | 0.06       | Sesquiterpenic alcohol |
| Caparratriene                        | 0.09     | 0.08       | Sesquiterpene          |
| $\alpha$ -Muurolole                  | 0.45     | 0.38       | Sesquiterpene          |
| $\delta$ -Guaiene                    | 0.22     | [1.37]     | Sesquiterpene          |
| $\beta$ -Bisabolene                  | 1.95*    | 1.51       | Sesquiterpene          |
| $\gamma$ -Cadinene                   | [1.95]*  | [0.63]*    | Sesquiterpene          |
| Cubebol                              | [1.95]*  | 0.06       | Sesquiterpenic alcohol |
| $\beta$ -Curcumene                   | [1.95]*  | 0.07       | Sesquiterpene          |
| (3E,6E)- $\alpha$ -Farnesene         | [1.95]*  | 0.07       | Sesquiterpene          |

|  |         |         |                          |
|--|---------|---------|--------------------------|
| δ-Cadinene                                   | 2.53*   | 2.22    | Sesquiterpene            |
| <i>trans</i> -Calamenene                     | [2.53]* | 0.02    | Sesquiterpene            |
| Zonarene                                     | [2.53]* | [0.63]* | Sesquiterpene            |
| β-Sesquiphellandrene                         | [2.53]* | [0.30]* | Sesquiterpene            |
| <i>trans</i> -Cadina-1,4-diene               | 0.22*   | 0.15    | Sesquiterpene            |
| ( <i>E</i> )-γ-Bisabolene                    | [0.22]* | 0.63    | Sesquiterpene            |
| α-Cadinene                                   | 0.15    | 0.16*   | Sesquiterpene            |
| α-Calacorene                                 | 0.12*   | 0.14    | Sesquiterpene            |
| Selina-3,7(11)-diene                         | [0.12]* | 0.30    | Sesquiterpene            |
| ( <i>E</i> )-α-Bisabolene                    | 0.21*   | [0.16]* | Sesquiterpene            |
| Isocaryophyllene epoxide B                   | [0.21]* | 0.08    | Sesquiterpenic ether     |
| Germacrene B                                 | 1.07    | 1.12    | Sesquiterpene            |
| Maaliol                                      | 0.15    | 0.13    | Sesquiterpenic alcohol   |
| β-Calacorene                                 | 0.36*   | 0.02    | Sesquiterpene            |
| Caryophyllenyl alcohol                       | [0.36]* | 0.65*   | Sesquiterpenic alcohol   |
| Spathulenol                                  | 0.15*   | 0.03    | Sesquiterpenic alcohol   |
| Germacrene D-4-ol                            | [0.15]* | 0.10    | Sesquiterpenic alcohol   |
| Caryophyllene oxide                          | 0.23*   | 0.12    | Sesquiterpenic ether     |
| Caryophyllene oxide isomer                   | [0.23]* | 0.04    | Sesquiterpenic ether     |
| 10-epi-Junenol                               | [0.23]* | 0.01    | Sesquiterpenic alcohol   |
| Globulol                                     | [0.23]* | 0.06    | Sesquiterpenic alcohol   |
| Ledol  | 0.19    | 0.11    | Sesquiterpenic alcohol   |
| Unknown                                      | 0.61*   | 0.09    | Oxygenated sesquiterpene |
| Junenol                                      | [0.61]* | [0.65]* | Sesquiterpenic alcohol   |
| Rosifoliol                                   | 0.04    | 0.04    | Sesquiterpenic alcohol   |
| 1-epi-Cubenol                                | 0.12    | 0.12    | Sesquiterpenic alcohol   |
| Caryophylladienol II                         | 0.07    | 0.30*   | Sesquiterpenic alcohol   |
| Isospathulenol                               | 0.03    | 0.02    | Sesquiterpenic alcohol   |
| τ-Cadinol                                    | 0.56*   | 0.29    | Sesquiterpenic alcohol   |
| τ-Muurolol                                   | [0.56]* | 0.30    | Sesquiterpenic alcohol   |
| α-Muurolol                                   | 0.35*   | 0.32    | Sesquiterpenic alcohol   |
| Unknown                                      | [0.35]* | 0.05    | Oxygenated sesquiterpene |
| Unknown                                      | 0.15*   | 0.07    | Sesquiterpenic alcohol   |
| Selin-11-en-4α-ol                            | [0.15]* | 0.10    | Sesquiterpenic alcohol   |
| α-Cadinol                                    | 0.44    | 0.42    | Sesquiterpenic alcohol   |
| <i>cis</i> -Calamenen-10-ol                  | 0.02    | 0.20    | Sesquiterpenic alcohol   |
| <i>trans</i> -Calamenen-10-ol                | 0.03    | 0.25*   | Sesquiterpenic alcohol   |
| (3 <i>Z</i> )-Caryophylla-3,8(13)-dien-5β-ol | 0.16*   | [0.25]* | Sesquiterpenic alcohol   |
| Cadalene                                     | [0.16]* | 0.16    | Sesquiterpene            |
| Germacra-4(15),5,10(14)-trien-1α-ol          | 0.03    | [0.30]* | Sesquiterpenic alcohol   |
| α-Bisabolol                                  | 0.03    | 0.03    | Sesquiterpenic alcohol   |
| Juniper camphor                              | 0.17    | [0.30]* | Sesquiterpenic alcohol   |
| Aromadendrane-4,10-diol                      | 0.01    | [0.25]* | Sesquiterpenic alcohol   |
| Methyl ( <i>E,E</i> )-farnesate?             | 0.07    |         | Sesquiterpenic ester     |
| Unknown                                      | 0.02    | 0.05    | Oxygenated diterpene     |
| Unknown                                      | 0.05    | [0.30]* | Diterpene                |
| Unknown                                      | 0.02    | 0.02    | Oxygenated diterpene     |
| Unknown                                      | 0.02    | 0.01    | Oxygenated diterpene     |
| Palmitic acid                                | 0.30    | 0.20    | Aliphatic acid           |
| Unknown                                      | 0.14    | [0.30]* | Oxygenated diterpene     |
| <i>cis</i> -3,14-Clerodadien-13-ol           | 0.22    | 0.29    | Diterpenic alcohol       |
| Manool                                       | 0.29    | 0.20    | Diterpenic alcohol       |

|                                |               |               |                        |
|--------------------------------|---------------|---------------|------------------------|
| Kolavelool                     | 0.05          | 0.05          | Diterpenic alcohol     |
| Linoleic acid                  | 0.05          |               | Aliphatic acid         |
| Oleic acid                     | 0.04          |               | Aliphatic acid         |
| Stearic acid                   | 0.48          | 0.29          | Aliphatic acid         |
| 3 $\alpha$ -Hydroxymanool      | 0.54          |               | Diterpenic alcohol     |
| Copalol                        | 0.35          |               | Diterpenic alcohol     |
| Kolavenol                      | 0.15          |               | Diterpenic alcohol     |
| Methyl copalate?               | 0.26          |               | Diterpenic ester       |
| Copaifera diterpenic acid I    | 3.85          | 2.94          | Diterpenic acid        |
| Methyl kolavenate              | 1.60          |               | Diterpenic ester       |
| Copaifera diterpenic acid II   | 0.30          | 3.05          | Diterpenic acid        |
| Kolavenyl acetate?             | 0.10          |               | Diterpenic ester       |
| Methyl hardwickiiate?          | 0.15          |               | Diterpenic ester       |
| Copaifera diterpenic acid III  | 0.19          |               | Diterpenic acid        |
| Copaifera diterpenic acid IV   | 1.60          | 1.03          | Diterpenic acid        |
| Copaifera diterpenic acid V    | 0.44          |               | Diterpenic acid        |
| Copaifera diterpenic acid VI   | 1.77          |               | Diterpenic acid        |
| Copaifera diterpenic acid VII  | 0.19          |               | Diterpenic acid        |
| Copaifera diterpenic acid VIII | 0.74          |               | Diterpenic acid        |
| Humulene epoxide I             |               | 1.48          | Sesquiterpenic ether   |
| Viridiflorol                   |               | 0.07          | Sesquiterpenic alcohol |
| <b>Total identified</b>        | <b>91.32%</b> | <b>90.57%</b> |                        |

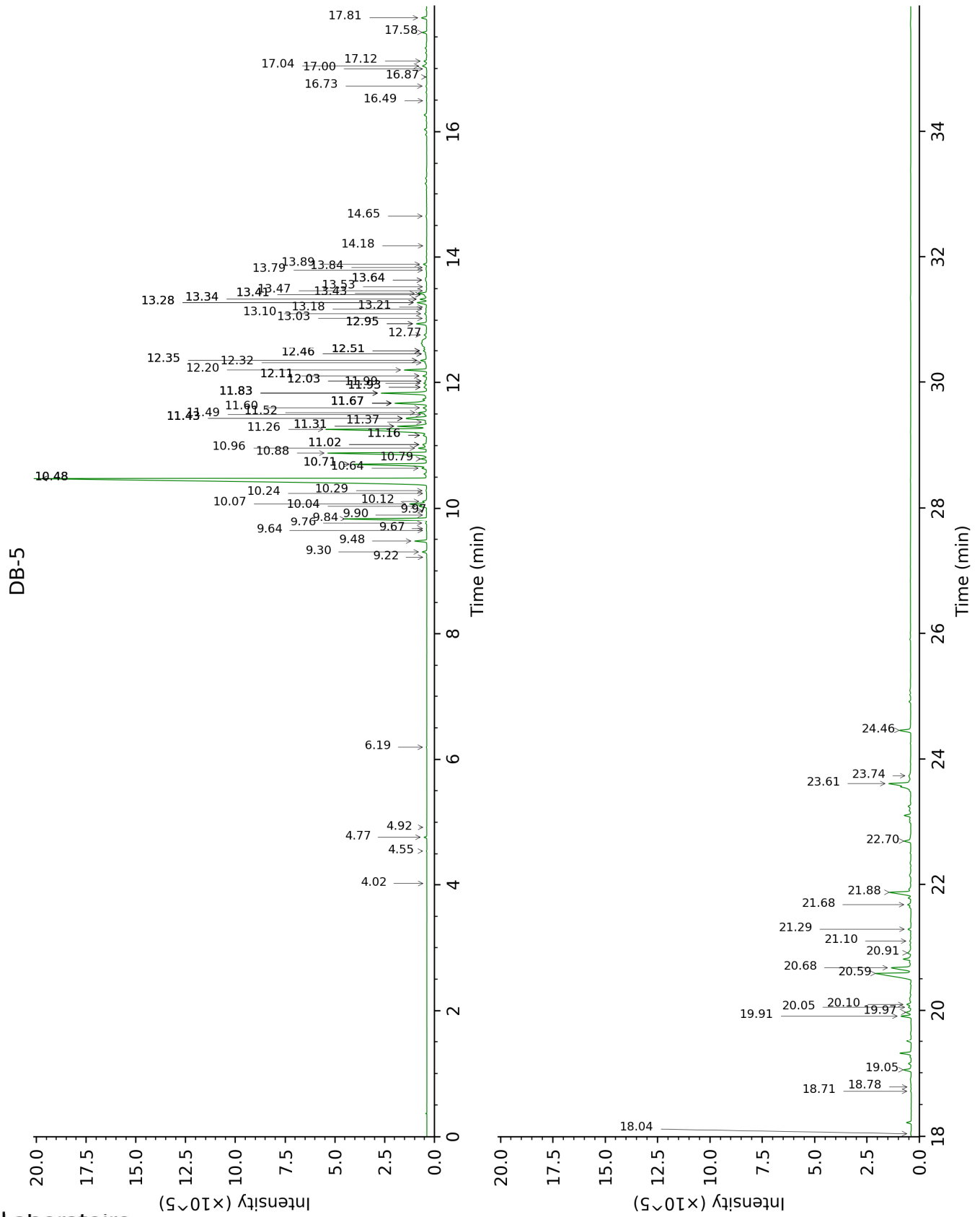
\*: Two or more compounds are coeluting on this column

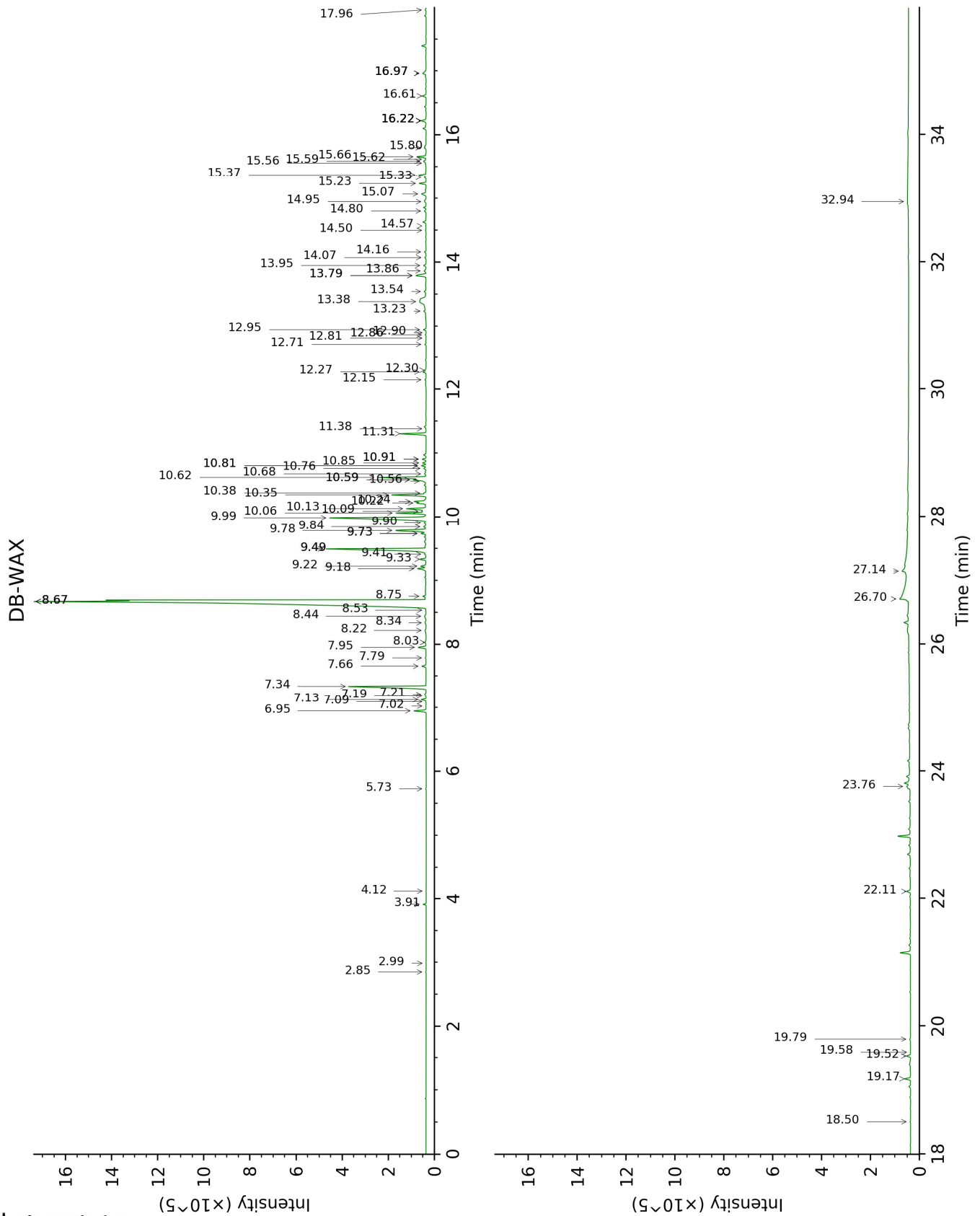
[xx]: Duplicate percentage due to coelutions, not taken account in the identified total

tr: The compound has been detected below 0.005% of total signal.

Note: no correction factor was applied

This page was intentionally left blank. The following pages present the complete data of the analysis.







FULL ANALYSIS DATA

| Identification                       | Column DB-5 |      |         | Column DB-WAX |      |         |
|--------------------------------------|-------------|------|---------|---------------|------|---------|
|                                      | R.T         | R.I  | %       | R.T           | R.I  | %       |
| Myrcene                              | 4.02        | 992  | tr      | 2.99          | 1135 | tr      |
| (2E,4E)-3,7-Dimethylocta-2,4-diene?  | 4.55        | 1025 | 0.02    | 2.85          | 1124 | 0.01    |
| (Z)- $\beta$ -Ocimene                | 4.77        | 1039 | 0.10    | 3.91          | 1206 | 0.10    |
| (E)- $\beta$ -Ocimene                | 4.92        | 1049 | 0.01    | 4.12          | 1221 | 0.01    |
| allo-Ocimene                         | 6.19        | 1130 | 0.02    | 5.73          | 1333 | 0.02    |
| $\delta$ -Elemene isomer             | 9.22        | 1330 | 0.02    | 7.02          | 1427 | 0.02    |
| $\delta$ -Elemene                    | 9.30        | 1336 | 0.24    | 7.13          | 1435 | 0.21    |
| $\alpha$ -Cubebene                   | 9.48        | 1348 | 0.56    | 6.95          | 1422 | 0.56    |
| Cyclosativene I                      | 9.64        | 1360 | 0.02    | 7.10          | 1433 | 0.01    |
| Cyclosativene II                     | 9.67        | 1363 | 0.02    | 7.19          | 1440 | 0.02    |
| $\alpha$ -Ylangene                   | 9.76        | 1369 | 0.07    | 7.21          | 1441 | 0.08    |
| $\alpha$ -Copaene                    | 9.84        | 1374 | 4.05    | 7.34          | 1451 | 4.21    |
| <i>cis</i> - $\beta$ -Elemene        | 9.90        | 1378 | 0.03    | 8.44          | 1534 | 0.12    |
| 7-epi-Sesquithujene                  | 9.97        | 1383 | 0.05    | 8.03          | 1502 | 0.07    |
| $\beta$ -Cubebene                    | 10.04       | 1388 | 0.37    | 7.95          | 1496 | 0.40    |
| $\beta$ -Elemene                     | 10.08       | 1391 | 0.97    | 8.67*         | 1552 | 46.14   |
| Cyperene                             | 10.12       | 1394 | 0.23    | 7.66          | 1474 | 0.20    |
| $\alpha$ -Gurjunene                  | 10.24       | 1403 | 0.03    | 7.79          | 1484 | 0.04    |
| Sesquithujene                        | 10.29       | 1406 | 0.07    | 8.22          | 1517 | 0.08    |
| $\beta$ -Caryophyllene               | 10.48*      | 1420 | 39.06   | 8.67*         | 1552 | [46.14] |
| $\beta$ -Copaene                     | 10.48*      | 1420 | [39.06] | 8.53          | 1542 | 0.02    |
| $\beta$ -Ylangene                    | 10.48*      | 1420 | [39.06] | 8.34          | 1526 | 0.07    |
| $\gamma$ -Elemene                    | 10.64       | 1433 | 0.28    | 9.22          | 1595 | 0.26    |
| <i>trans</i> - $\alpha$ -Bergamotene | 10.70*      | 1437 | 3.94    | 8.67*         | 1552 | [46.14] |
| Aromadendrene                        | 10.70*      | 1437 | [3.94]  | 8.75          | 1558 | 0.16    |
| Sesquisabinene A                     | 10.79       | 1444 | 0.29    | 9.33          | 1604 | 0.27    |
| $\alpha$ -Humulene                   | 10.88       | 1451 | 5.34    | 9.49*         | 1617 | 5.71    |
| allo-Aromadendrene                   | 10.96       | 1456 | 0.40    | 9.18          | 1592 | 0.44    |
| <i>cis</i> -Muurolo-4(15),5-diene    | 11.02*      | 1461 | 0.28    | 9.49*         | 1617 | [5.71]  |
| (E)- $\beta$ -Farnesene              | 11.02*      | 1461 | [0.28]  | 9.74*         | 1636 | 0.22    |
| <i>trans</i> -Cadina-1(6),4-diene    | 11.16*      | 1472 | 0.24    | 9.41          | 1610 | 0.05    |
| $\gamma$ -Muurolole                  | 11.16*      | 1472 | [0.24]  | 9.74*         | 1636 | [0.22]  |
| Germacrene D                         | 11.26       | 1479 | 6.84    | 9.99          | 1657 | 5.92    |
| $\beta$ -Selinene                    | 11.31*      | 1482 | 1.54    | 10.06†        | 1663 | 1.37    |
| ar-Curcumene                         | 11.31*      | 1482 | [1.54]  | 10.81*†       | 1724 | [0.30]  |
| $\delta$ -Selinene                   | 11.37       | 1487 | 0.11    | 9.84          | 1645 | 0.13    |
| $\alpha$ -Selinene                   | 11.43*      | 1492 | 1.50    | 10.13         | 1668 | 1.00    |
| Viridiflorene                        | 11.43*      | 1492 | [1.50]  | 9.78          | 1640 | 1.65    |
| Bicyclogermacrene                    | 11.43*      | 1492 | [1.50]  | 10.24         | 1678 | 0.52    |
| epi-Cubebol                          | 11.43*      | 1492 | [1.50]  | 12.15         | 1840 | 0.06    |
| Caparratriene                        | 11.50       | 1496 | 0.09    | 9.90          | 1650 | 0.08    |

|  |        |      |        |         |      |        |
|--|--------|------|--------|---------|------|--------|
| α-Muurolene  | 11.52  | 1498 | 0.45   | 10.22   | 1676 | 0.38   |
| δ-Guaiene  | 11.60  | 1504 | 0.22   | 10.09†  | 1665 | [1.37] |
| β-Bisabolene   | 11.67* | 1510 | 1.95   | 10.35   | 1686 | 1.51   |
| γ-Cadinene   | 11.67* | 1510 | [1.95] | 10.58*† | 1706 | [0.63] |
| Cubebol  | 11.67* | 1510 | [1.95] | 12.71   | 1890 | 0.06   |
| β-Curcumene  | 11.67* | 1510 | [1.95] | 10.38   | 1688 | 0.07   |
| (3E,6E)-α-Farnesene  | 11.67* | 1510 | [1.95] | 10.68   | 1713 | 0.07   |
| δ-Cadinene   | 11.83* | 1523 | 2.53   | 10.62   | 1709 | 2.22   |
| <i>trans</i> -Calamenene   | 11.83* | 1523 | [2.53] | 11.38   | 1773 | 0.02   |
| Zonarene   | 11.83* | 1523 | [2.53] | 10.58*† | 1706 | [0.63] |
| β-Sesquiphellandrene   | 11.83* | 1523 | [2.53] | 10.81*† | 1724 | [0.30] |
| <i>trans</i> -Cadina-1,4-diene   | 11.93* | 1530 | 0.22   | 10.85   | 1728 | 0.15   |
| ( <i>E</i> )-γ-Bisabolene  | 11.93* | 1530 | [0.22] | 10.56†  | 1704 | 0.63   |
| α-Cadinene   | 11.99  | 1535 | 0.15   | 10.91*  | 1733 | 0.16   |
| α-Calacorene   | 12.02* | 1538 | 0.12   | 12.27   | 1851 | 0.14   |
| Selina-3,7(11)-diene   | 12.02* | 1538 | [0.12] | 10.76†  | 1721 | 0.30   |
| ( <i>E</i> )-α-Bisabolene  | 12.11* | 1544 | 0.21   | 10.91*  | 1733 | [0.16] |
| Isocaryophyllene epoxide B   | 12.11* | 1544 | [0.21] | 12.30   | 1853 | 0.08   |
| Germacrene B   | 12.20  | 1552 | 1.07   | 11.31   | 1767 | 1.12   |
| Maaliol  | 12.32  | 1561 | 0.15   | 13.23   | 1938 | 0.13   |
| β-Calacorene   | 12.35* | 1563 | 0.36   | 12.81   | 1899 | 0.02   |
| Caryophyllenyl alcohol   | 12.35* | 1563 | [0.36] | 13.79*  | 1989 | 0.65   |
| Spathulenol  | 12.46* | 1572 | 0.15   | 14.57   | 2063 | 0.03   |
| Germacrene D-4-ol  | 12.46* | 1572 | [0.15] | 13.86   | 1996 | 0.10   |
| Caryophyllene oxide  | 12.50* | 1576 | 0.23   | 12.94   | 1911 | 0.12   |
| Caryophyllene oxide isomer   | 12.50* | 1576 | [0.23] | 12.86   | 1903 | 0.04   |
| 10-epi-Junenol   | 12.50* | 1576 | [0.23] | 12.90   | 1906 | 0.01   |
| Globulol   | 12.50* | 1576 | [0.23] | 14.07   | 2016 | 0.06   |
| Ledol  | 12.77  | 1596 | 0.19   | 13.54   | 1966 | 0.11   |
| Unknown [m/z 179, 161 (66), 119 (44), 95 (38), 105 (35)... 204 (24), 222 (1)]        | 12.94* | 1610 | 0.61   | 14.80   | 2085 | 0.09   |
| Junenol  | 12.94* | 1610 | [0.61] | 13.79*  | 1989 | [0.65] |
| Rosifoliol   | 13.03  | 1617 | 0.04   | 14.50   | 2056 | 0.04   |
| 1-epi-Cubenol  | 13.10  | 1624 | 0.12   | 13.95   | 2004 | 0.12   |
| Caryophylladienol II   | 13.18  | 1630 | 0.07   | 16.22*  | 2229 | 0.30   |
| Isospathulenol   | 13.21  | 1632 | 0.03   | 15.62   | 2167 | 0.02   |
| τ-Cadinol  | 13.28* | 1638 | 0.56   | 15.07   | 2112 | 0.29   |
| τ-Muurolol   | 13.28* | 1638 | [0.56] | 15.23   | 2128 | 0.30   |
| α-Muurolol   | 13.34* | 1643 | 0.35   | 15.37   | 2142 | 0.32   |
| Unknown [m/z 121, 95 (50), 59 (46), 93 (41), 81 (36), 67 (36)... 206 (18), 220? (1)] | 13.34* | 1643 | [0.35] | 14.95   | 2100 | 0.05   |

|   |         |      |        |        |      |        |
|---|---------|------|--------|--------|------|--------|
| Unknown cadinol analog II [m/z 95, 121 (73), 43 (57), 79 (43), 161 (43), 109 (40)... 204 (35), 222 (2)] | 13.41*  | 1648 | 0.15   | 15.33  | 2138 | 0.07   |
| Selin-11-en-4 $\alpha$ -ol  | 13.41*  | 1648 | [0.15] | 15.80  | 2185 | 0.10   |
| $\alpha$ -Cadinol   | 13.43   | 1650 | 0.44   | 15.66  | 2171 | 0.42   |
| <i>cis</i> -Calamenen-10-ol   | 13.47   | 1654 | 0.02   | 16.61  | 2269 | 0.20   |
| <i>trans</i> -Calamenen-10-ol   | 13.53   | 1659 | 0.03   | 16.97* | 2306 | 0.25   |
| (3 <i>Z</i> )-Caryophylla-3,8(13)-dien-5 $\beta$ -ol  | 13.64*† | 1668 | 0.16   | 16.97* | 2306 | [0.25] |
| Cadalene  | 13.64*† | 1668 | [0.16] | 15.59  | 2164 | 0.16   |
| Germacra-4(15),5,10(14)-trien-1 $\alpha$ -ol  | 13.80   | 1681 | 0.03   | 16.22* | 2229 | [0.30] |
| $\alpha$ -Bisabolol   | 13.84   | 1684 | 0.03   | 15.56  | 2161 | 0.03   |
| Juniper camphor   | 13.89   | 1688 | 0.17   | 16.22* | 2229 | [0.30] |
| Aromadendrane-4,10-diol   | 14.18   | 1713 | 0.01   | 16.97* | 2306 | [0.25] |
| Methyl ( <i>E,E</i> )-farnesate?  | 14.65   | 1754 | 0.07   |        |      |        |
| Unknown [m/z 43, 95 (66), 81 (63), 137 (61), 41 (53), 107 (47)... 262 (6)...]                           | 16.49   | 1919 | 0.02   | 17.96  | 2414 | 0.05   |
| Unknown [m/z 95, 105 (79), 107 (75), 189 (68), 41 (64), 81 (61)... 257 (12), 272 (2)]                   | 16.73   | 1941 | 0.05   | 16.22* | 2229 | [0.30] |
| Unknown [m/z 43, 95 (98), 107 (84), 93 (55), 121 (53)... 262 (7)...]                                    | 16.87   | 1955 | 0.02   | 18.50  | 2474 | 0.02   |
| Unknown [m/z 95, 107 (61), 191 (46), 121 (45)...]   | 17.00   | 1967 | 0.02   | 19.58  | 2598 | 0.01   |
| Palmitic acid   | 17.04   | 1972 | 0.30   | 22.11  | 2910 | 0.20   |
| Unknown [m/z 95, 107 (27), 81 (19), 191 (17), 55 (16)... 275 (1)...]                                    | 17.12   | 1979 | 0.14   | 16.22* | 2229 | [0.30] |
| <i>cis</i> -3,14-Clerodadien-13-ol  | 17.58   | 2023 | 0.22   | 19.17  | 2550 | 0.29   |
| Manool  | 17.81   | 2046 | 0.29   | 19.52  | 2591 | 0.20   |
| Kolavelool  | 18.04   | 2069 | 0.05   | 19.79  | 2623 | 0.05   |
| Linoleic acid   | 18.71   | 2137 | 0.05   |        |      |        |
| Oleic acid  | 18.78   | 2144 | 0.04   |        |      |        |
| Stearic acid  | 19.05   | 2172 | 0.48   | 23.76  | 3131 | 0.29   |

|                                |       |               |      |       |               |      |
|--------------------------------|-------|---------------|------|-------|---------------|------|
| 3 $\alpha$ -Hydroxymanool      | 19.91 | 2263          | 0.54 |       |               |      |
| Copalol                        | 19.97 | 2269          | 0.35 |       |               |      |
| Kolavenol                      | 20.05 | 2278          | 0.15 |       |               |      |
| Methyl copalate?               | 20.10 | 2283          | 0.26 |       |               |      |
| Copaifera diterpenic acid I    | 20.59 | 2336          | 3.85 | 26.70 | 3550          | 2.94 |
| Methyl kolavenate              | 20.68 | 2346          | 1.60 |       |               |      |
| Copaifera diterpenic acid II   | 20.92 | 2373          | 0.30 | 27.14 | 3603          | 3.05 |
| Kolavenyl acetate?             | 21.10 | 2394          | 0.10 |       |               |      |
| Methyl hardwickiiate?          | 21.29 | 2415          | 0.15 |       |               |      |
| Copaifera diterpenic acid III  | 21.68 | 2460          | 0.19 |       |               |      |
| Copaifera diterpenic acid IV   | 21.88 | 2483          | 1.60 | 32.94 | 3976          | 1.03 |
| Copaifera diterpenic acid V    | 22.70 | 2581          | 0.44 |       |               |      |
| Copaifera diterpenic acid VI   | 23.61 | 2694          | 1.77 |       |               |      |
| Copaifera diterpenic acid VII  | 23.74 | 2709          | 0.19 |       |               |      |
| Copaifera diterpenic acid VIII | 24.46 | 2802          | 0.74 |       |               |      |
| Humulene epoxide I             |       |               |      | 13.38 | 1951          | 1.48 |
| Viridiflorol                   |       |               |      | 14.16 | 2024          | 0.07 |
| <b>Total identified</b>        |       | <b>91.32%</b> |      |       | <b>90.57%</b> |      |
| <b>Total reported</b>          |       | <b>91.57%</b> |      |       | <b>90.87%</b> |      |

\*: Two or more compounds are coeluting on this column

[xx]: Duplicate percentage due to coelutions, not taken account in the identified total

†: Peaks apexes were resolved, but peaks overlapped and were summed for analysis

tr: The compound has been detected below 0.005% of total signal.

Note: no correction factor was applied

R.T.: Retention time (minutes)

R.I.: Retention index