

Date : 2023-11-24

CERTIFICATE OF ANALYSIS - GC PROFILING

SAMPLE IDENTIFICATION

**Internal code :** 23K17-PTH01

**Customer Identification :** Cedarwood Texas (crude) - USA - CB8110R

**Type :** Essential Oil

**Source :** *Juniperus mexicana*

**Customer :** Plant Therapy

Checked and approved by:

Alexis St-Gelais, Ph. D., Chimiste 2013-174

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## GAS CHROMATOGRAPHIC ANALYSIS

**Method :** PC-MAT-014 - Analysis of the composition of an essential oil or other volatile liquide by FAST GC-FID



**Results :** See analysis summary (next page)

**Analyst :** Sylvain Mercier, M. Sc., Chimiste 2014-005

**Date :** 2023-11-20

## PHYSICOCHEMICAL DATA

**Refractive index :**  $1.5062 \pm 0.0003$  (20 °C)

**Method :** PC-MAT-016 - Measure of the refractive index of a liquid.

**Analyst :** Cindy Caron B. Sc.

**Date :** 2023-11-20

## CONCLUSION

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

## ANALYSIS SUMMARY - CONSOLIDATED CONTENTS

New readers of similar reports are encouraged to read table footnotes at least once.

| Identification            | %    | Class                 |
|---------------------------|------|-----------------------|
| Tricyclene                | 0.01 | Monoterpene           |
| Unknown                   | 0.01 | Monoterpene           |
| α-Pinene                  | 0.08 | Monoterpene           |
| Camphene                  | 0.01 | Monoterpene           |
| α-Fenchene                | 0.02 | Monoterpene           |
| Thuja-2,4(10)-diene       | 0.02 | Monoterpene           |
| Sabinene                  | 0.01 | Monoterpene           |
| α-Methylstyrene           | 0.01 | Normonoterpene        |
| Myrcene                   | 0.01 | Monoterpene           |
| α-Phellandrene            | 0.01 | Monoterpene           |
| Δ3-Carene                 | 0.02 | Monoterpene           |
| para-Cymene               | 0.02 | Monoterpene           |
| Limonene                  | 0.01 | Monoterpene           |
| para-Cymenene             | 0.01 | Monoterpene           |
| Terpinolene               | 0.01 | Monoterpene           |
| α-Campholenal             | 0.01 | Monoterpenic aldehyde |
| trans-Pinocarveol         | 0.02 | Monoterpenic alcohol  |
| Camphor                   | 0.02 | Monoterpenic ketone   |
| meta-Mentha-4,6-dien-8-ol | 0.01 | Monoterpenic alcohol  |
| Pinocampnone              | 0.01 | Monoterpenic ketone   |
| Pinocarvone               | 0.01 | Monoterpenic ketone   |
| Borneol                   | 0.01 | Monoterpenic alcohol  |
| α-Phellandren-8-ol        | 0.02 | Monoterpenic alcohol  |
| Terpinen-4-ol             | 0.04 | Monoterpenic alcohol  |
| meta-Cymen-8-ol           | 0.01 | Monoterpenic alcohol  |
| para-Cymen-8-ol           | 0.05 | Monoterpenic alcohol  |
| α-Terpineol               | 0.05 | Monoterpenic alcohol  |
| Myrtenol                  | 0.04 | Monoterpenic alcohol  |
| Verbenone                 | 0.04 | Monoterpenic ketone   |
| Carvacrol methyl ether    | 0.06 | Monoterpenic ether    |
| Carvenone                 | 0.01 | Monoterpenic ketone   |
| Bornyl acetate            | 0.01 | Monoterpenic ester    |
| Brasila-1,10-diene        | 0.01 | Sesquiterpene         |
| Carvacrol                 | 0.01 | Monoterpenic alcohol  |
| α-Terpinyl acetate        | 0.02 | Monoterpenic ester    |
| African-1-ene             | 0.01 | Sesquiterpene         |
| 2-epi-α-Funebrene         | 0.25 | Sesquiterpene         |
| α-Dupreziannene           | 0.40 | Sesquiterpene         |
| Isolongifolene            | 0.02 | Sesquiterpene         |
| β-Elemene                 | 0.70 | Sesquiterpene         |

|  |       |                          |
|--|-------|--------------------------|
| $\alpha$ -Chamipinene                    | 0.05  | Sesquiterpene            |
| Unknown                                  | 0.15  | Sesquiterpene            |
| $\beta$ -Funebrene                       | 1.77  | Sesquiterpene            |
| $\alpha$ -Cedrene                        | 11.30 | Sesquiterpene            |
| $\beta$ -Caryophyllene                   | 0.40  | Sesquiterpene            |
| $\beta$ -Cedrene                         | 3.63  | Sesquiterpene            |
| $\beta$ -Dupreianene                     | 0.61  | Sesquiterpene            |
| <i>cis</i> -Thujopsene                   | 33.77 | Sesquiterpene            |
| Isobazzanene                             | 0.13  | Sesquiterpene            |
| <i>trans</i> - $\alpha$ -Bergamotene     | 0.13  | Sesquiterpene            |
| $\beta$ -Barbatene                       | 0.03  | Sesquiterpene            |
| Prezinaene                               | 0.11  | Sesquiterpene            |
| $\alpha$ -Himachalene                    | 0.12  | Sesquiterpene            |
| 7,8-Dehydro- $\alpha$ -acoradiene?       | 0.45  | Sesquiterpene            |
| $\alpha$ -Humulene                       | 0.18  | Sesquiterpene            |
| Thujopsadiene?                           | 0.31  | Sesquiterpene            |
| (E)- $\beta$ -Farnesene                  | 0.16  | Sesquiterpene            |
| $\alpha$ -Acoradiene                     | 0.48  | Sesquiterpene            |
| $\beta$ -Acoradiene                      | 0.40  | Sesquiterpene            |
| Thujopsene isomer                        | 0.19  | Sesquiterpene            |
| $\beta$ -Chamigrene                      | 0.17  | Sesquiterpene            |
| Unknown                                  | 0.72  | Sesquiterpene            |
| $\gamma$ -Himachalene                    | 0.51  | Sesquiterpene            |
| Germacrene D                             | 0.10  | Sesquiterpene            |
| $\alpha$ -Curcumene                      | 0.26  | Sesquiterpene            |
| Unknown                                  | 0.37  | Sesquiterpene            |
| $\beta$ -Himachalene                     | 0.75  | Sesquiterpene            |
| Pseudowiddrene                           | 0.81  | Sesquiterpene            |
| $\alpha$ -Chamigrene                     | 1.44  | Sesquiterpene            |
| Cuparene                                 | 2.14  | Sesquiterpene            |
| $\alpha$ -Cuprenene                      | 1.27  | Sesquiterpene            |
| 1,2-Dihydrocuparene                      | 0.10  | Sesquiterpene            |
| $\alpha$ -Alaskene                       | 0.16  | Sesquiterpene            |
| Unknown                                  | 0.17  | Sesquiterpene            |
| $\beta$ -Curcumene                       | 0.05  | Sesquiterpene            |
| $\alpha$ -Dehydro- $\alpha$ -himachalene | 0.04  | Sesquiterpene            |
| $\gamma$ -Cadinene                       | 0.23  | Sesquiterpene            |
| 1,4-Dihydrocuparene                      | 0.21  | Sesquiterpene            |
| $\gamma$ -Dehydro- $\alpha$ -himachalene | 0.07  | Sesquiterpene            |
| $\delta$ -Cadinene                       | 0.46  | Sesquiterpene            |
| $\gamma$ -Cuprenene                      | 0.47  | Sesquiterpene            |
| Unknown                                  | 0.25  | Oxygenated sesquiterpene |
| $\delta$ -Cuprenene epimer I             | 0.11  | Sesquiterpene            |
| $\alpha$ -Himachalene                    | 0.01  | Sesquiterpene            |
| $\delta$ -Cuprenene epimer II            | 0.10  | Sesquiterpene            |

|                                    |       |                          |
|------------------------------------|-------|--------------------------|
| Unknown                            | 0.14  | Oxygenated sesquiterpene |
| Unknown                            | 0.09  | Oxygenated sesquiterpene |
| Unknown                            | 0.09  | Oxygenated sesquiterpene |
| Caryophyllenyl alcohol             | 0.07  | Sesquiterpenic alcohol   |
| Unknown                            | 0.12  | Sesquiterpene            |
| Caryophyllene oxide                | 0.02  | Sesquiterpenic ether     |
| Caryophyllene oxide isomer         | 0.01  | Sesquiterpenic ether     |
| allo-Cedrol                        | 0.58  | Sesquiterpenic alcohol   |
| Widdrol                            | 2.41  | Sesquiterpenic alcohol   |
| $\alpha$ -Cedrol                   | 17.81 | Sesquiterpenic alcohol   |
| $\beta$ -Himachalene oxide         | 0.08  | Sesquiterpenic ether     |
| epi-Cedrol                         | 0.57  | Sesquiterpenic alcohol   |
| Unknown                            | 0.23  | Oxygenated sesquiterpene |
| 10-epi-Cubenol                     | 0.19  | Sesquiterpenic alcohol   |
| Unknown                            | 0.08  | Oxygenated sesquiterpene |
| 2-epi- $\alpha$ -Cedren-3-one      | 0.07  | Sesquiterpenic ketone    |
| $\alpha$ -Acorenol                 | 1.05  | Sesquiterpenic alcohol   |
| Unknown                            | 0.16  | Oxygenated sesquiterpene |
| $\beta$ -Acorenol                  | 0.33  | Sesquiterpenic alcohol   |
| Unknown                            | 0.19  | Oxygenated sesquiterpene |
| Unknown                            | 0.03  | Oxygenated sesquiterpene |
| Unknown                            | 0.54  | Oxygenated sesquiterpene |
| Himachalol                         | 0.55  | Sesquiterpenic alcohol   |
| Unknown                            | 0.23  | Oxygenated sesquiterpene |
| Unknown                            | 0.27  | Oxygenated sesquiterpene |
| Cedrenol analog                    | 0.34  | Sesquiterpenic alcohol   |
| 14-Hydroxy-9-epi-(E)-caryophyllene | 0.14  | Sesquiterpenic alcohol   |
| 1,7-diepi- $\alpha$ -Cedrenal?     | 0.20  | Sesquiterpenic aldehyde  |
| Khusiol                            | 0.08  | Sesquiterpenic alcohol   |
| Cedr-8-en-13-ol                    | 0.10  | Sesquiterpenic alcohol   |
| $\alpha$ -Bisabolol                | 0.37  | Sesquiterpenic alcohol   |
| $\alpha$ -Cedrenol                 | 0.13  | Sesquiterpenic alcohol   |
| Unknown                            | 0.36  | Oxygenated sesquiterpene |
| Thujopsenal                        | 0.04  | Sesquiterpenic aldehyde  |
| Mayurone?                          | 0.03  | Norsesquiterpenic ketone |
| Unknown                            | 0.05  | Oxygenated sesquiterpene |
| Thujopsenal analog                 | 0.05  | Sesquiterpenic aldehyde  |
| Unknown                            | 0.04  | Oxygenated sesquiterpene |
| Cuparenal                          | 0.03  | Sesquiterpenic aldehyde  |
| Unknown                            | 0.03  | Oxygenated sesquiterpene |
| Cedryl acetate                     | 0.11  | Sesquiterpenic ester     |
| Unknown                            | 0.03  | Oxygenated sesquiterpene |
| $\beta$ -Acoradienol?              | 0.04  | Sesquiterpenic alcohol   |
| Unknown                            | 0.06  | Oxygenated sesquiterpene |
| Unknown                            | 0.05  | Oxygenated sesquiterpene |

|                           |              |                          |
|---------------------------|--------------|--------------------------|
| Unknown                   | 0.04         | Oxygenated sesquiterpene |
| Manool                    | 0.06         | Diterpenic alcohol       |
| 7,13-Abietadiene          | 0.05         | Diterpene                |
| <b>Consolidated total</b> | <b>95.80</b> |                          |

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

Note: no correction factor was applied

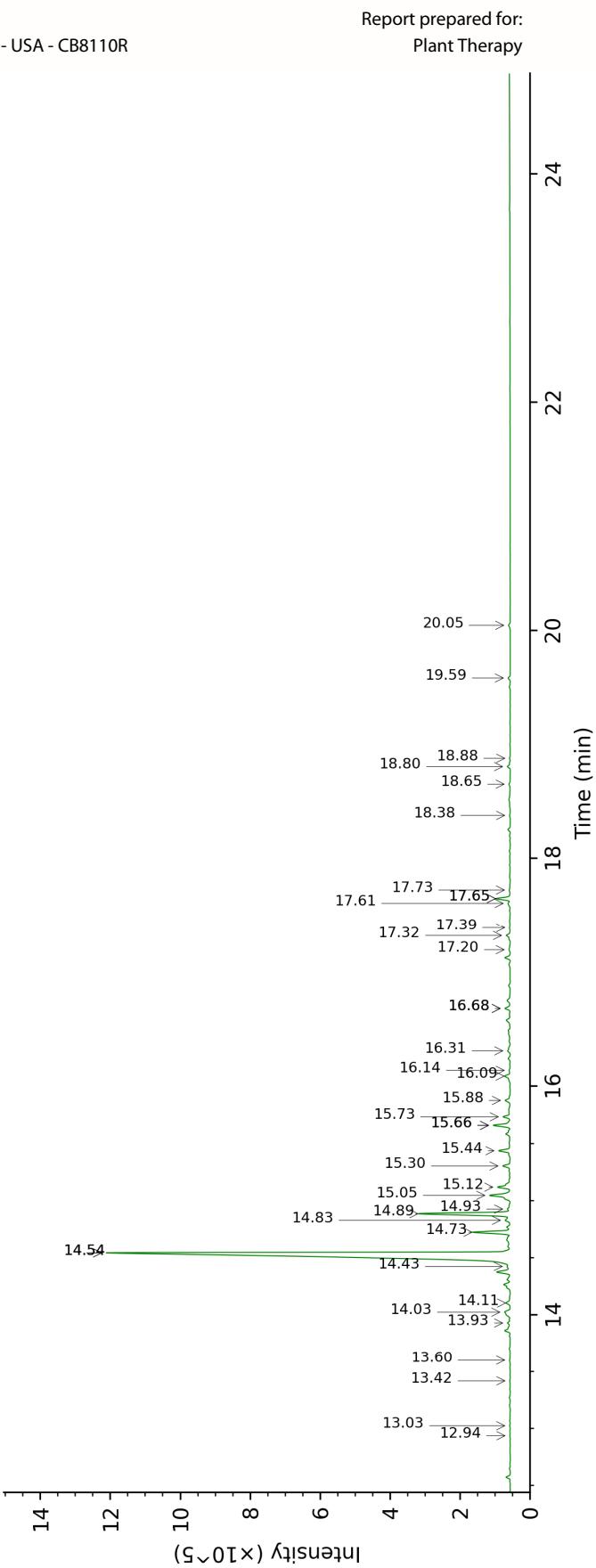
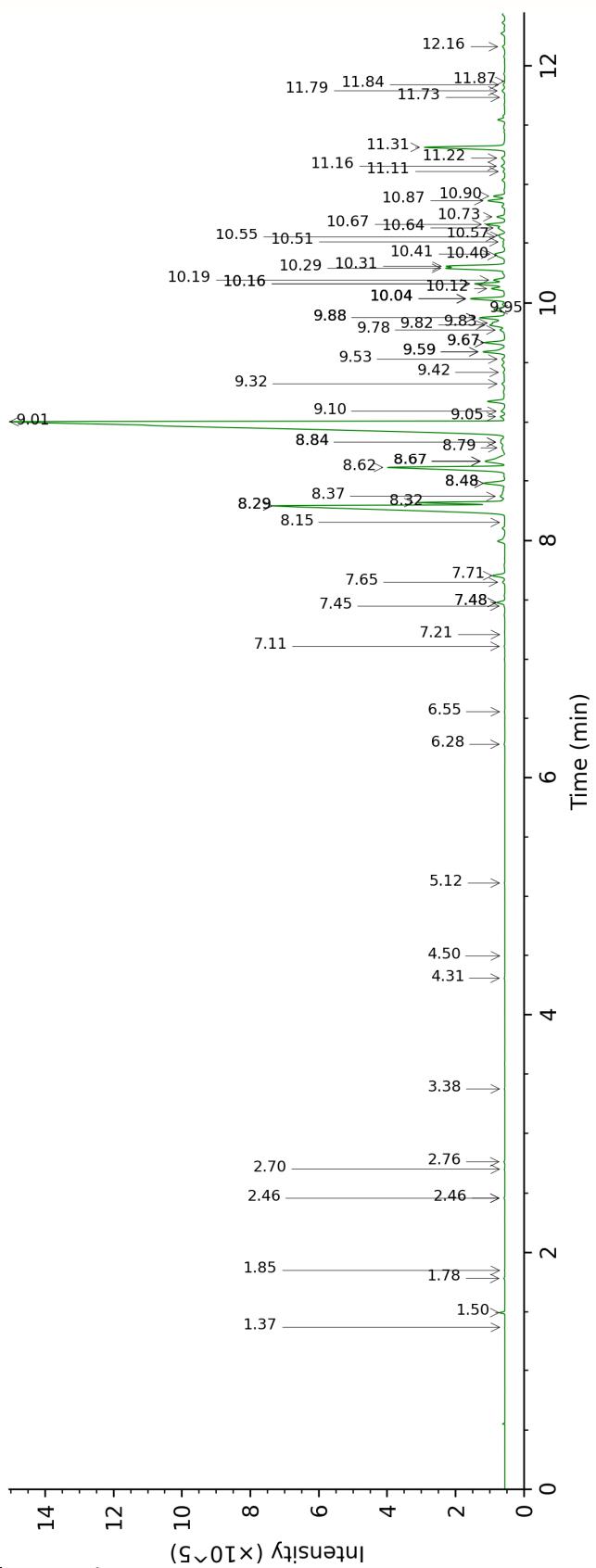
**About "consolidated" data:** The table above presents the breakdown of the sample volatile constituents after applying an algorithm to collapse data acquired from the multi-columns system of PhytoChemia into a single set of consolidated contents. In case of discrepancies between columns, the algorithm is set to prioritize data from the most standard DB-5 column, and smallest values so as to avoid overestimating individual content. This process is semi-automatic. Advanced users are invited to consult the "Full analysis data" table after the chromatograms in this report to access the full untreated data and perform their own calculations if needed.

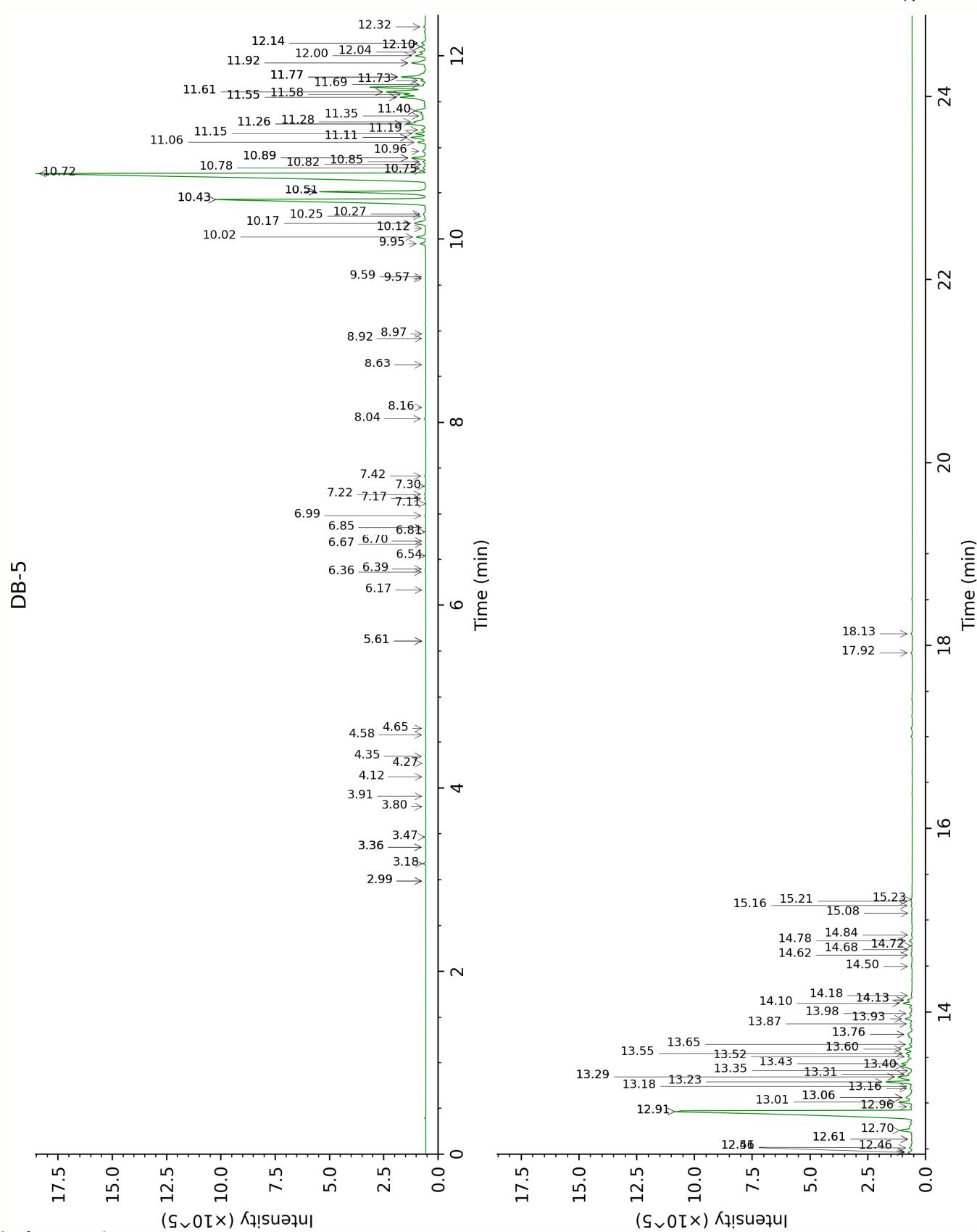
**Unknowns:** Unknown compounds' mass spectral data is presented in the "Full analysis data" table. The occurrence of unknown compounds is to be expected in many samples, and does not denote particular problems unless noted otherwise in the conclusion.

**Bracketed value ([xx]):** A bracketed percent value indicate that two or more compound percentage could not be solved due to coelution.

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

DB-WAX





FULL ANALYSIS DATA

| Tricyclene   | Column DB-WAX |        |        | Column DB-5 |        |        |
|--|---------------|--------|--------|-------------|--------|--------|
|  | 1.37          | 973.7  | 0.01   | 2.99*       | 919.1  | [0.01] |
| Unknown JUVI I<br>[m/z 105, 79 (80),<br>91 (78), 77 (69),<br>78 (56), 93 (46),<br>120 (44)... 136 (4)] | 2.70          | 1106.0 | 0.01   | 2.99*       | 919.1  | [0.01] |
| $\alpha$ -Pinene   | 1.50          | 992.3  | 0.08   | 3.18        | 931.6  | 0.08   |
| Camphene   | 1.85          | 1028.0 | 0.01   | 3.36*       | 943.3  | [0.03] |
| $\alpha$ -Fenchene   | 1.78          | 1021.6 | 0.02   | 3.36*       | 943.3  | [0.03] |
| Thuja-2,4(10)-diene  | 2.46*         | 1085.2 | [0.02] | 3.47        | 950.6  | 0.02   |
| Sabinene   | 2.46*         | 1085.2 | [0.02] | 3.80        | 972.3  | 0.01   |
| $\alpha$ -Methylstyrene  | 5.12          | 1282.4 | 0.01   | 3.91        | 979.7  | 0.01   |
| Myrcene  |               |        |        | 4.12        | 993.6  | 0.01   |
| $\alpha$ -Phellandrene   |               |        |        | 4.27        | 1003.3 | 0.01   |
| $\Delta$ 3-Carene  | 2.76          | 1110.7 | 0.02   | 4.35        | 1008.2 | 0.02   |
| para-Cymene  | 4.31          | 1225.3 | 0.01   | 4.58        | 1022.7 | 0.02   |
| Limonene   | 3.38          | 1157.0 | 0.01   | 4.65        | 1027.2 | 0.01   |
| para-Cymenene  | 6.56          | 1387.5 | 0.01   | 5.61*       | 1087.0 | [0.02] |
| Terpinolene  | 4.50          | 1238.6 | 0.01   | 5.61*       | 1087.0 | [0.02] |
| $\alpha$ -Campholenal  | 7.21          | 1435.3 | 0.01   | 6.17        | 1122.0 | 0.01   |
| trans-Pinocarveol  | 9.42          | 1602.1 | 0.04   | 6.36        | 1134.4 | 0.02   |
| Camphor  | 7.45          | 1452.8 | 0.02   | 6.40        | 1136.6 | 0.02   |
| meta-Mentha-4,6-dien-8-ol  | 9.59*         | 1615.9 | [0.67] | 6.54        | 1145.8 | 0.01   |
| Pinocamphone   | 7.48*         | 1455.0 | [0.21] | 6.67        | 1153.8 | 0.01   |
| Pinocarvone  | 8.15          | 1504.8 | 0.01   | 6.70        | 1156.0 | 0.01   |
| Borneol  | 10.04*        | 1651.5 | [0.91] | 6.81        | 1162.9 | 0.01   |
| $\alpha$ -Phellandren-8-ol   | 10.40*†       | 1680.5 | [0.18] | 6.85        | 1165.8 | 0.02   |
| Terpinen-4-ol  | 8.84*         | 1557.0 | [0.25] | 6.98        | 1174.1 | 0.04   |
| meta-Cymen-8-ol  | 11.74         | 1792.2 | 0.01   | 7.11        | 1182.3 | 0.01   |
| para-Cymen-8-ol  | 11.79         | 1797.0 | 0.09   | 7.17        | 1186.0 | 0.05   |
| $\alpha$ -Terpineol  | 10.04*        | 1651.5 | [0.91] | 7.22        | 1188.9 | 0.05   |
| Myrtenol   | 11.11         | 1739.8 | 0.04   | 7.30        | 1194.5 | 0.04   |
| Verbenone  | 9.83*†        | 1635.2 | [0.30] | 7.42        | 1201.5 | 0.04   |
| Carvacrol methyl ether   | 8.84*         | 1557.0 | [0.25] | 8.04        | 1243.0 | 0.06   |
| Carvenone  | 10.16*        | 1661.6 | [0.82] | 8.16        | 1251.3 | 0.01   |
| Bornyl acetate   | 8.48*         | 1530.0 | [0.62] | 8.63        | 1282.3 | 0.01   |
| Brasila-1,10-diene   | 6.28          | 1368.2 | 0.02   | 8.92        | 1301.8 | 0.01   |
| Carvacrol  | 15.66*        | 2157.4 | [0.51] | 8.97        | 1305.2 | 0.01   |

|   |         |        |         |        |        |         |
|---|---------|--------|---------|--------|--------|---------|
| $\alpha$ -Terpinyl acetate  | 9.95    | 1644.2 | 0.37    | 9.57   | 1347.4 | 0.02    |
| African-1-ene   | 7.11    | 1428.0 | 0.02    | 9.59   | 1348.8 | 0.01    |
| 2-epi- $\alpha$ -Funebrene  | 7.48*   | 1455.0 | [0.21]  | 9.95   | 1374.1 | 0.25    |
| $\alpha$ -Dupreianene   | 7.71    | 1471.6 | 0.34    | 10.02  | 1379.2 | 0.40    |
| Isolongifolene  | 7.65    | 1467.6 | 0.06    | 10.12  | 1385.7 | 0.02    |
| $\beta$ -Elemene  | 8.67*   | 1544.1 | [0.95]  | 10.17  | 1389.6 | 0.70    |
| $\alpha$ -Chamipinene   | 8.29*   | 1515.4 | [10.98] | 10.25  | 1395.1 | 0.05    |
| Unknown JUOX II [m/z 107, 91 (86), 93 (83), 79 (81), 162 (74), 41 (73), 133 (72)... 204 (13)] | 8.37    | 1521.6 | 0.15    | 10.27  | 1396.8 | 0.15    |
| $\beta$ -Funebrene  | 8.32    | 1517.5 | 1.77    | 10.43* | 1408.0 | [13.06] |
| $\alpha$ -Cedrene   | 8.29*   | 1515.4 | [10.98] | 10.43* | 1408.0 | [13.06] |
| $\beta$ -Caryophyllene  | 8.67*   | 1544.1 | [0.95]  | 10.51* | 1414.3 | [4.64]  |
| $\beta$ -Cedrene  | 8.62    | 1540.2 | 3.63    | 10.51* | 1414.3 | [4.64]  |
| $\beta$ -Dupreianene  | 8.48*   | 1530.0 | [0.62]  | 10.51* | 1414.3 | [4.64]  |
| cis-Thujopsene  | 9.01    | 1570.1 | 33.52   | 10.72  | 1429.5 | 33.77   |
| Isobazzanene  | 8.79    | 1553.4 | 0.16    | 10.75  | 1431.7 | 0.13    |
| trans- $\alpha$ -Bergamotene  | 8.67*   | 1544.1 | [0.95]  | 10.78  | 1434.0 | 0.13    |
| $\beta$ -Barbatene  | 9.32    | 1594.4 | 0.09    | 10.82  | 1436.9 | 0.03    |
| Prezizaene  | 9.05    | 1573.4 | 0.13    | 10.85  | 1439.1 | 0.11    |
| $\alpha$ -Himachalene   | 9.10    | 1576.8 | 0.12    | 10.89* | 1442.2 | [0.57]  |
| 7,8-Dehydro- $\alpha$ -acoradiene?  | 9.82*†  | 1633.9 | [0.44]  | 10.89* | 1442.2 | [0.57]  |
| $\alpha$ -Humulene  | 9.53    | 1611.0 | 0.09    | 10.96  | 1447.5 | 0.18    |
| Thujopsadiene?  | 10.41*† | 1681.5 | [0.27]  | 11.06  | 1454.8 | 0.31    |
| (E)- $\beta$ -Farnesene   | 9.78    | 1630.5 | 0.16    | 11.11* | 1458.7 | [0.64]  |
| $\alpha$ -Acoradiene  | 9.59*   | 1615.9 | [0.67]  | 11.11* | 1458.7 | [0.64]  |
| $\beta$ -Acoradiene   | 9.67*   | 1622.0 | [0.53]  | 11.15  | 1461.8 | 0.40    |
| Thujopsene isomer   | 9.67*   | 1622.0 | [0.53]  | 11.19  | 1464.8 | 0.19    |
| $\beta$ -Chamigrene   | 9.88*   | 1638.8 | [0.68]  | 11.26* | 1469.7 | [0.89]  |
| Unknown JUVI IV [m/z 91, 105 (93), 161 (77), 93 (73), 119 (71), 133 (69)... 204 (31)]         |         |        |         | 11.26* | 1469.7 | [0.89]  |
| $\gamma$ -Himachalene   | 9.88*   | 1638.8 | [0.68]  | 11.28  | 1471.4 | 0.51    |
| Germacrene D  | 10.04*  | 1651.5 | [0.91]  | 11.35  | 1476.1 | 0.10    |
| ar-Curcumene  | 10.90   | 1722.5 | 0.26    | 11.40* | 1480.3 | [0.58]  |

|   |        |        |        |         |        |        |
|---|--------|--------|--------|---------|--------|--------|
| Unknown AMBA<br>V [m/z 189, 91<br>(95), 105 (93),<br>133 (84), 119<br>(75), 41 (59), 93<br>(46)... 204 (33)]            | 10.12  | 1658.3 | 0.37   | 11.40*  | 1480.3 | [0.58] |
| $\beta$ -Himachalene  | 10.04* | 1651.5 | [0.91] | 11.55*† | 1491.3 | [1.31] |
| Pseudowiddrene  | 10.16* | 1661.6 | [0.82] | 11.55*† | 1491.3 | [1.31] |
| $\alpha$ -Chamigrene  | 10.29  | 1672.0 | 1.44   | 11.58*† | 1493.5 | [0.80] |
| Cuparene  | 11.32  | 1756.9 | 2.14   | 11.61*† | 1495.6 | [2.07] |
| $\alpha$ -Cuprenene   | 10.31  | 1673.3 | 1.27   | 11.61*† | 1495.6 | [2.07] |
| 1,2-Dihydrocuparene   | 10.56  | 1693.1 | 0.09   | 11.69   | 1501.6 | 0.10   |
| $\alpha$ -Alaskene  | 10.19  | 1664.1 | 0.29   | 11.73   | 1504.8 | 0.16   |
| Unknown JUVI V<br>[m/z 121, 123<br>(45), 91 (24), 107<br>(24), 122 (24), 95<br>(23)... 204 (11)]                        | 10.57  | 1694.2 | 0.17   | 11.77*  | 1507.9 | [1.17] |
| $\beta$ -Curcumene  | 10.51  | 1689.7 | 0.05   | 11.77*  | 1507.9 | [1.17] |
| $\alpha$ -Dehydro- $\alpha$ -himachalene  | 11.84  | 1801.4 | 0.04   | 11.77*  | 1507.9 | [1.17] |
| $\gamma$ -Cadinene  | 10.64  | 1700.1 | 0.23   | 11.77*  | 1507.9 | [1.17] |
| 1,4-Dihydrocuparene   | 10.73  | 1707.9 | 0.21   | 11.77*  | 1507.9 | [1.17] |
| $\gamma$ -Dehydro- $\alpha$ -himachalene  | 12.16  | 1829.6 | 0.07   | 11.92*  | 1519.8 | [0.73] |
| $\delta$ -Cadinene  | 10.67  | 1702.6 | 0.46   | 11.92*  | 1519.8 | [0.73] |
| $\gamma$ -Cuprenene   | 10.87  | 1719.3 | 0.44   | 12.00   | 1526.0 | 0.47   |
| Unknown JUVI VI<br>[m/z 91, 107 (97),<br>105 (93), 41 (92),<br>109 (78), 43 (78),<br>121 (76), 135<br>(75)... 220 (21)] |        |        |        | 12.04   | 1529.1 | 0.25   |
| $\delta$ -Cuprenene<br>epimer I   | 11.16  | 1743.6 | 0.11   | 12.10*  | 1533.7 | [0.24] |
| ar-Himachalene  | 11.87  | 1804.1 | 0.01   | 12.10*  | 1533.7 | [0.24] |
| $\delta$ -Cuprenene<br>epimer II  | 11.22  | 1749.4 | 0.10   | 12.14*  | 1536.7 | [0.21] |
| Unknown JUVI<br>VII [m/z 43, 95<br>(81), 207 (61), 41<br>(55), 55 (50)... 222<br>(3)]                                   | 14.11  | 2006.0 | 0.14   | 12.14*  | 1536.7 | [0.21] |

|   |        |        |         |        |        |         |
|---|--------|--------|---------|--------|--------|---------|
| Unknown JUVI VIII [m/z 91, 119 (98), 121 (91), 105 (85), 43 (82), 41 (76)... 205 (37), 220 (16)]      | 13.60  | 1959.0 | 0.03    | 12.32  | 1550.6 | 0.09    |
| Unknown JUVI IX [m/z 95, 191 (52), 107 (50), 121 (32), 81 (31)...]                                    | 14.43  | 2036.6 | 0.09    | 12.46* | 1561.9 | [0.19]  |
| Caryophyllenyl alcohol  | 13.93  | 1989.3 | 0.07    | 12.46* | 1561.9 | [0.19]  |
| Unknown JUAS I [m/z 95, 131 (96), 202 (64), 187 (61), 159 (55), 105 (50)...202 (64)]                  |        |        |         | 12.51  | 1565.8 | 0.12    |
| Caryophyllene oxide   | 13.02  | 1906.1 | 0.02    | 12.61* | 1573.3 | [0.06]  |
| Caryophyllene oxide isomer  | 12.94  | 1898.1 | 0.01    | 12.61* | 1573.3 | [0.06]  |
| allo-Cedrol   | 14.54* | 2047.9 | [18.54] | 12.70  | 1580.7 | 0.58    |
| Widdrol   | 14.89  | 2080.7 | 2.41    | 12.91* | 1596.8 | [20.23] |
| $\alpha$ -Cedrol  | 14.54* | 2047.9 | [18.54] | 12.91* | 1596.8 | [20.23] |
| $\beta$ -Himachalene oxide  | 13.42  | 1942.2 | 0.02    | 12.96  | 1600.9 | 0.08    |
| epi-Cedrol  | 15.05  | 2096.4 | 0.66    | 13.01  | 1605.0 | 0.57    |
| Unknown CEDE XIII [m/z 138, 110 (77), 137 (75), 107 (62), 91 (61), 93 (60), 109 (57)... 220 (34)]     |        |        |         | 13.06* | 1609.0 | [0.42]  |
| 10-epi-Cubenol  | 14.03  | 1998.4 | 0.19    | 13.06* | 1609.0 | [0.42]  |
| Unknown JUVI XI [m/z 107, 41 (86), 123 (85), 82 (79), 95 (77), 93 (76), 91 (73), 69 (71)... 220 (13)] | 14.93  | 2084.6 | 0.08    | 13.16  | 1617.1 | 0.08    |
| 2-epi- $\alpha$ -Cedren-3-one   |        |        |         | 13.18  | 1619.0 | 0.07    |
| $\alpha$ -Acorenol  | 14.73  | 2065.2 | 0.94    | 13.23  | 1623.1 | 1.05    |
| Unknown JUVI  | 15.88  | 2179.2 | 0.16    | 13.29* | 1627.6 | [0.83]  |

|  |        |        |        |        |        |        |
|--|--------|--------|--------|--------|--------|--------|
| XII [m/z 132, 175 (22), 119 (18), 91 (18), 157 (18)... 219 (10)]   |        |        |        |        |        |        |
| $\beta$ -Acorenol  | 15.12  | 2103.5 | 0.33   | 13.29* | 1627.6 | [0.83] |
| Unknown JUVI X [m/z 105, 93 (78), 95 (75), 131 (72), 119 (71), 132 (70), 91 (67), 120 (49)... 202 (39), 220 (9)] | 16.09  | 2200.9 | 0.23   | 13.31  | 1629.8 | 0.19   |
| Unknown JUVI XIII [m/z 132, 91 (24), 119 (22), 105 (21), 133 (17), 117 (16)... 219 (3)]                          |        |        |        | 13.35  | 1633.1 | 0.03   |
| Unknown JUVI XV [m/z 123, 81 (77), 95 (77), 107 (72), 41 (72), 93 (66), 55 (64)... 220? (13)]                    |        |        |        | 13.40  | 1637.1 | 0.54   |
| Himachalol   | 15.44  | 2135.3 | 0.32   | 13.43  | 1639.5 | 0.55   |
| Unknown JUVI XIV [m/z 41, 91 (96), 79 (88), 69 (82), 123 (80), 93 (80)... 220 (8)]                               | 17.65* | 2365.6 | [0.38] | 13.52  | 1646.5 | 0.23   |
| Unknown JUVI XVI [m/z 43, 81 (84), 41 (64), 67 (62), 95 (58), 79 (58)... 204 (48), 220 (2)]                      | 15.74  | 2164.9 | 0.19   | 13.55  | 1649.4 | 0.27   |
| Cedrenol analog  | 16.68* | 2262.2 | [0.16] | 13.60  | 1653.2 | 0.34   |
| 14-Hydroxy-9-epi-(E)-caryophyllene   | 16.68* | 2262.2 | [0.16] | 13.65  | 1657.5 | 0.14   |
| 1,7-diepi- $\alpha$ -Cedrenal?   | 15.30  | 2122.0 | 0.20   | 13.76* | 1666.5 | [0.29] |
| Khusiol  | 16.31  | 2223.8 | 0.08   | 13.76* | 1666.5 | [0.29] |
| Cedr-8-en-13-ol  | 17.20  | 2316.7 | 0.05   | 13.87  | 1675.9 | 0.10   |
| $\alpha$ -Bisabolol  | 15.66* | 2157.4 | [0.51] | 13.93  | 1680.5 | 0.37   |

|   |        |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|--------|
| $\alpha$ -Cedrenol  | 17.32  | 2330.1 | 0.12   | 13.98  | 1685.2 | 0.13   |
| Unknown JUVI XVII [m/z 91, 105 (87), 123 (74), 135 (70), 107 (60), 79 (59)... 220 (13)]           |        |        |        | 14.10  | 1694.3 | 0.36   |
| Thujopsenal   | 16.14  | 2206.1 | 0.04   | 14.13* | 1697.3 | [0.22] |
| Mayurone?   | 17.39  | 2337.6 | 0.03   | 14.13* | 1697.3 | [0.22] |
| Unknown JUVI XVIII [m/z 105, 69 (77), 91 (66), 119 (65), 111 (56), 107 (45), 55 (45)... 220? (2)] | 17.73  | 2373.7 | 0.04   | 14.18  | 1701.3 | 0.05   |
| Thujopsenal analog  | 17.65* | 2365.6 | [0.38] | 14.50  | 1728.7 | 0.05   |
| Unknown JUVI XIX [m/z 105, 91 (83), 79 (78), 135 (67), 107 (56), 67 (53)... 220 (9)]              |        |        |        | 14.62  | 1739.3 | 0.04   |
| Cuparenal   |        |        |        | 14.68  | 1744.5 | 0.03   |
| Unknown JUVI XX [m/z 105, 69 (79), 111 (66), 119 (60), 91 (50), 55 (41)... 203 (11), 220 (1)]     |        |        |        | 14.72  | 1748.1 | 0.03   |
| Cedryl acetate  | 14.83  | 2075.2 | 0.18   | 14.78  | 1753.0 | 0.11   |
| Unknown CEDE XXII [m/z 91, 105 (74), 93 (67), 79 (59), 133 (54), 41 (47), 107 (46)...]            | 18.65  | 2476.8 | 0.05   | 14.84  | 1758.4 | 0.03   |
| $\beta$ -Acoradienol?   | 18.38  | 2446.2 | 0.02   | 15.08  | 1778.9 | 0.04   |
| Unknown JUVI XXII [m/z 189, 91 (48), 133 (40), 105 (40), 41 (34), 187 (34)... 220 (5)]            | 18.88  | 2502.6 | 0.02   | 15.16  | 1786.2 | 0.06   |
| Unknown JUVI XXIII [m/z 148, 141 (99), 91 (74), 105 (52), 41 (42),                                | 20.05  | 2640.2 | 0.06   | 15.21  | 1790.2 | 0.05   |

|   |       |        |      |       |        |
|---|-------|--------|------|-------|--------|
| 121 (42), 133<br>(37)... 218 (32)]  |       |        |      |       |        |
| Unknown JUVI<br>XXIV [m/z 121,<br>136 (53), 91 (22),<br>93 (19), 79 (15),<br>105 (13)... 220 (3)] | 18.80 | 2494.2 | 0.08 | 15.23 | 1792.0 |
| Manool  | 19.59 | 2584.9 | 0.06 | 17.92 | 2043.9 |
| 7,13-Abietadiene  | 17.61 | 2361.0 | 0.09 | 18.13 | 2064.5 |
| Total reported  |       | 93.23% |      |       | 97.01% |
|   |       |        |      |       |        |

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

[xx]: Duplicate percentage due to coelutions, only the first one is taken into account in the consolidated 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