

## GC/MS BATCH NUMBER: BP0100

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**ESSENTIAL OIL:** BALM MINT BUSH  
**BOTANICAL NAME:** PROSTANTHERA MELISSIFOLIA  
**ORIGIN:** AUSTRALIAN

| KEY CONSTITUENTS PRESENT IN THIS BATCH OF BUSH MINT BALM OIL | %    |
|--|------|
| PIPERITONE   | 33.6 |
| 1,8-CINEOLE  | 22.5 |
| $\alpha$ -PINENE   | 17.8 |
| LINALOOL   | 14.2 |
| TERPINEN-4-OL  | 3.6  |
| LIMONENE   | 1.7  |
| $\gamma$ -TERPINENE  | 1.4  |
| $\alpha$ -TERPINEOL  | 1.2  |
| p-CYMENE   | 1.1  |

Comments from Robert Tisserand: Slightly pungent yet delicate minty odor. No sign of adulteration.

**Date :** September 30, 2016

*SAMPLE IDENTIFICATION*

**Internal code :** 16I22-PTH2-1-DM

**Customer identification :** Bush Mint Balm oil - Australia - BP010065R

**Type :** Essential oil

**Source :** *Prostanthera melissifolia*

**Customer :** Plant Therapy

*ANALYSIS*

**Method :** PC-PA-001-15E06, "Analysis of the composition of a liquid essential oil by GC-FID" (in French).

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

**Analysis date :** 2016-09-30

Checked and approved by :

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

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IDENTIFIED COMPOUNDS

| Identification                      | Column: BP5 |      |        | Column: WAX |      |        | Molecular Class   |
|-------------------------------------|-------------|------|--------|-------------|------|--------|-------------------|
|                                     | R.T.        | R.I. | %      | %           | R.I. | R.T.   |                   |
| Tricyclene                          | 3.16        | 912  | 0.05   | 0.04        | 925  | 0.78   | Monoterpene       |
| $\alpha$ -Thujene                   | 3.25        | 918  | 0.04   | 17.69       | 949  | 0.87*  | Monoterpene       |
| $\alpha$ -Pinene                    | 3.38        | 926  | 17.78  | [17.69]     | 949  | 0.87*  | Monoterpene       |
| Camphene                            | 3.63*       | 941  | 0.30   | 0.40        | 994  | 1.06   | Monoterpene       |
| $\alpha$ -Fenchene                  | 3.63*       | 941  | [0.30] | 0.06        | 983  | 1.02   | Monoterpene       |
| $\beta$ -Pinene                     | 4.12        | 971  | 0.24   | 0.26        | 1036 | 1.34   | Monoterpene       |
| Myrcene                             | 4.41        | 988  | 0.24   | 0.24        | 1112 | 1.96   | Monoterpene       |
| $\alpha$ -Phellandrene              | 4.68        | 1004 | 0.33   | 0.29        | 1105 | 1.89   | Monoterpene       |
| $\alpha$ -Terpinene                 | 4.87        | 1014 | 0.06   | 0.07        | 1120 | 2.03   | Monoterpene       |
| para-Cymene                         | 5.10*       | 1027 | 2.74   | 1.07        | 1205 | 3.02   | Monoterpene       |
| Limonene                            | 5.10*       | 1027 | [2.74] | 24.31       | 1147 | 2.36*  | Monoterpene       |
| 1,8-Cineole                         | 5.20        | 1033 | 22.50  | [24.31]     | 1147 | 2.36*  | Monoterp. ether   |
| <i>cis</i> - $\beta$ -Ocimene       | 5.28        | 1037 | 0.05   | 1.46        | 1185 | 2.79*  | Monoterpene       |
| <i>trans</i> - $\beta$ -Ocimene     | 5.46        | 1047 | 0.02   | 0.04        | 1198 | 2.96   | Monoterpene       |
| $\gamma$ -Terpinene                 | 5.65        | 1058 | 1.35   | [1.46]      | 1185 | 2.79*  | Monoterpene       |
| <i>cis</i> -Linalool oxide (fur.)   | 5.93        | 1073 | 0.01   | 0.01        | 1374 | 5.38   | Monoterp. alcohol |
| Terpinolene                         | 6.11        | 1082 | 0.14   | 0.14        | 1221 | 3.23   | Monoterpene       |
| <i>trans</i> -Linalool oxide (fur.) | 6.25        | 1090 | 0.01   | tr          | 1402 | 5.78   | Monoterp. alcohol |
| para-Cymenene                       | 6.33        | 1094 | 0.02   | 0.01        | 1365 | 5.26   | Monoterpene       |
| Linalool                            | 6.73        | 1110 | 14.15  | 14.17       | 1493 | 7.43*  | Monoterp. alcohol |
| <i>cis</i> -para-Menth-2-en-1-ol    | 7.15        | 1126 | 0.10   | [14.17]     | 1493 | 7.43*  | Monoterp. alcohol |
| <i>trans</i> -para-Menth-2-en-1-ol  | 7.66        | 1145 | 0.15   | 0.14        | 1553 | 8.89   | Monoterp. alcohol |
| Terpinen-4-ol                       | 8.71        | 1184 | 3.55   | 3.64        | 1528 | 8.17*  | Monoterp. alcohol |
| $\alpha$ -Terpineol                 | 9.36        | 1203 | 1.15   | 34.62       | 1630 | 11.25* | Monoterp. alcohol |
| $\gamma$ -Terpineol                 | 9.72        | 1211 | 0.03   | 0.03        | 1646 | 11.96  | Monoterp. alcohol |
| Verbenone                           | 9.87        | 1215 | 0.04   | 0.04        | 1608 | 10.53  | Monoterp. ketone  |
| <i>trans</i> -Piperitol             | 9.94        | 1216 | 0.04   | 0.06        | 1666 | 12.80  | Monoterp. alcohol |
| Piperitone                          | 11.90       | 1261 | 33.57  | [34.62]     | 1630 | 11.25* | Monoterp. ketone  |
| Bicycloelemene                      | 14.77       | 1315 | 0.04   | 0.03        | 1426 | 6.16   | Sesquiterpene     |
| $\alpha$ -Cubebene                  | 15.85       | 1332 | 0.02   | 0.02        | 1419 | 6.02   | Sesquiterpene     |
| $\alpha$ -Terpinyl acetate          | 16.39       | 1340 | 0.05   | [34.62]     | 1630 | 11.25* | Monoterp. ester   |
| $\alpha$ -Copaene                   | 17.38       | 1355 | 0.02   | 0.01        | 1432 | 6.28   | Sesquiterpene     |
| $\beta$ -Elemene                    | 18.59       | 1374 | 0.03   | [3.64]      | 1528 | 8.17*  | Sesquiterpene     |
| $\alpha$ -Gurjunene                 | 19.31       | 1385 | 0.03   | 0.05        | 1464 | 6.88   | Sesquiterpene     |
| $\beta$ -Caryophyllene              | 20.20       | 1398 | 0.14   | [3.64]      | 1528 | 8.17*  | Sesquiterpene     |
| Aromadendrene                       | 21.57       | 1414 | 0.06   | 0.06        | 1536 | 8.38   | Sesquiterpene     |
| allo-Aromadendrene                  | 23.22       | 1434 | 0.10   | 0.06        | 1566 | 9.26   | Sesquiterpene     |
| Viridiflorene                       | 25.96       | 1467 | 0.09   | [34.62]     | 1630 | 11.25* | Sesquiterpene     |

|                         |       |      |               |               |      |        |               |
|-------------------------|-------|------|---------------|---------------|------|--------|---------------|
| Bicyclogermacrene       | 26.39 | 1472 | 0.08          | [34.62]       | 1630 | 11.25* | Sesquiterpene |
| <b>Total identified</b> |       |      | <b>99.32%</b> | <b>99.02%</b> |      |        |               |

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

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

Note: no correction factor was applied

#### OTHER DATA

**Physical aspect :** Clear liquid

**Refractive index :** 1.4705 ± 0.0003 (20 °C)

#### CONCLUSION

No adulterant or diluent were detected using this method. However, Phytochemia can make no guarantee that this oil corresponds to the stated species, as we have yet to find any reliable reference pertaining to this essential oil.



