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# Certificate of Analysis

Archers Apiaries Ltd

Cromwell
Attention: Mark Archer
Phone:
Email:

Lab Reference: 20-11161
Submitted by: N/A
Date Received: 19/03/2020
Date Completed: 23/03/2020
Order Number: N/A
Reference: 2020 Extraction

## Report Comments

Samples were received by Analytica Laboratories in acceptable condition unless otherwise noted on this report.

## Results Summary

### MPI Manuka Classification*

| Laboratory ID | Sample ID | MPI Manuka Classification* |
|---|---|---|
| 20-11161-1 | Drum 1 C | MONOFLORAL MANUKA |
| 20-11161-2 | Drum 2 C | MONOFLORAL MANUKA |
| 20-11161-3 | Drum 3 C | MONOFLORAL MANUKA |
| 20-11161-4 | Drum 4 C | MONOFLORAL MANUKA |
| 20-11161-5 | Drum 5 C | MONOFLORAL MANUKA |
| 20-11161-6 | Drum 6 C | MONOFLORAL MANUKA |
| 20-11161-7 | Drum 1 D | MONOFLORAL MANUKA |
| 20-11161-8 | Drum 2 D | MONOFLORAL MANUKA |
| 20-11161-9 | Drum 3 D | MONOFLORAL MANUKA |
| 20-11161-10 | Drum 4 D | MONOFLORAL MANUKA |
| 20-11161-11 | Drum 5 D | MONOFLORAL MANUKA |
| 20-11161-12 | Drum 6 D | MONOFLORAL MANUKA |
| 20-11161-13 | Drum 1 E | MONOFLORAL MANUKA |
| 20-11161-14 | Drum 2 E | MONOFLORAL MANUKA |
| 20-11161-15 | Drum 3 E | MONOFLORAL MANUKA |
| 20-11161-16 | Drum 4 E | MONOFLORAL MANUKA |
| 20-11161-17 | Drum 1 F | MONOFLORAL MANUKA |
| 20-11161-18 | Drum 2 F | MONOFLORAL MANUKA |
| 20-11161-19 | Drum 3 F | MONOFLORAL MANUKA |
| 20-11161-20 | Drum 4 F | MONOFLORAL MANUKA |
| 20-11161-21 | Drum 5 F | MONOFLORAL MANUKA |
| 20-11161-22 | Drum 6 F | MONOFLORAL MANUKA |

**MPI Manuka Classification* Approver:**

Maria Tourna, Ph.D.
Genomics Team Leader





IANZ ACCREDITED LABORATORY

## MPI Manuka DNA

| Laboratory ID | Sample ID | Manuka DNA |
|---|---|---|
| | *Units*<br>*Reporting Limit* | Cq |
| 20-11161-1 | Drum 1 C | 18.33 |
| 20-11161-2 | Drum 2 C | 17.64 |
| 20-11161-3 | Drum 3 C | 17.61 |
| 20-11161-4 | Drum 4 C | 17.87 |
| 20-11161-5 | Drum 5 C | 18.30 |
| 20-11161-6 | Drum 6 C | 17.75 |
| 20-11161-7 | Drum 1 D | 17.70 |
| 20-11161-8 | Drum 2 D | 18.39 |
| 20-11161-9 | Drum 3 D | 18.00 |
| 20-11161-10 | Drum 4 D | 17.90 |
| 20-11161-11 | Drum 5 D | 17.65 |
| 20-11161-12 | Drum 6 D | 17.67 |
| 20-11161-13 | Drum 1 E | 17.96 |
| 20-11161-14 | Drum 2 E | 19.31 |
| 20-11161-15 | Drum 3 E | 18.98 |
| 20-11161-16 | Drum 4 E | 17.96 |
| 20-11161-17 | Drum 1 F | 22.04 |
| 20-11161-18 | Drum 2 F | 18.36 |
| 20-11161-19 | Drum 3 F | 17.90 |
| 20-11161-20 | Drum 4 F | 17.87 |
| 20-11161-21 | Drum 5 F | 18.47 |
| 20-11161-22 | Drum 6 F | 19.09 |

**MPI Manuka DNA Approver:**

Maria Tourna, Ph.D.
Genomics Team Leader

## MPI Manuka Markers

| Laboratory ID | Sample ID | 4-Hydroxyphenyllactic acid (4-HPLA) | 2-Methoxybenzoic acid (2-MBA) | 2'-Methoxy acetophenone (2'-MAP) | 3-Phenyllactic acid (3-PLA) |
|---|---|---|---|---|---|
| | *Units*<br>*Reporting Limit* | mg/kg<br>0.80 | mg/kg<br>0.80 | mg/kg<br>0.80 | mg/kg<br>20 |
| 20-11161-1 | Drum 1 C | 9.9 | 19 | 23 | 550 |
| 20-11161-2 | Drum 2 C | 9.7 | 19 | 21 | 550 |
| 20-11161-3 | Drum 3 C | 10 | 19 | 21 | 550 |
| 20-11161-4 | Drum 4 C | 10 | 17 | 18 | 530 |
| 20-11161-5 | Drum 5 C | 9.6 | 18 | 20 | 520 |
| 20-11161-6 | Drum 6 C | 9.7 | 18 | 19 | 550 |
| 20-11161-7 | Drum 1 D | 9.3 | 14 | 16 | 500 |
| 20-11161-8 | Drum 2 D | 9.4 | 14 | 16 | 510 |
| 20-11161-9 | Drum 3 D | 8.5 | 13 | 14 | 460 |
| 20-11161-10 | Drum 4 D | 9.2 | 15 | 17 | 490 |
| 20-11161-11 | Drum 5 D | 8.5 | 14 | 15 | 470 |
| 20-11161-12 | Drum 6 D | 9.1 | 15 | 17 | 500 |
| 20-11161-13 | Drum 1 E | 10 | 19 | 21 | 570 |
| 20-11161-14 | Drum 2 E | 11 | 20 | 23 | 590 |

## MPI Manuka Markers

| Laboratory ID | Sample ID | 4-Hydroxyphenyllactic acid (4-HPLA) | 2-Methoxybenzoic acid (2-MBA) | 2'-Methoxy acetophenone (2'-MAP) | 3-Phenyllactic acid (3-PLA) |
|---|---|---|---|---|---|
| | *Units*<br>*Reporting Limit* | mg/kg<br>0.80 | mg/kg<br>0.80 | mg/kg<br>0.80 | mg/kg<br>20 |
| 20-11161-15 | Drum 3 E | 10 | 19 | 23 | 570 |
| 20-11161-16 | Drum 4 E | 11 | 19 | 22 | 590 |
| 20-11161-17 | Drum 1 F | 10 | 21 | 18 | 550 |
| 20-11161-18 | Drum 2 F | 9.6 | 18 | 18 | 520 |
| 20-11161-19 | Drum 3 F | 9.1 | 17 | 17 | 500 |
| 20-11161-20 | Drum 4 F | 9.4 | 19 | 17 | 510 |
| 20-11161-21 | Drum 5 F | 9.3 | 18 | 16 | 510 |
| 20-11161-22 | Drum 6 F | 9.6 | 18 | 17 | 510 |

**MPI Manuka Markers Approver:**

Nicholas Kuan, M.Sc.
Technologist

## Method Summary

**MPI Manuka Classification**

For classification as monofloral manuka, the following chemicals all need to be present and at these levels (Animal Products Notice - General Export Requirements for Bee Products, 2018):

- 4-hydroxyphenyllactic acid at a level greater than or equal to 1mg/kg
- 2-methoxybenzoic acid at a level greater than or equal to 1mg/kg
- 2'-methoxyacetophenone at a level greater than or equal to 5mg/kg
- 3-phenyllactic acid at a level greater than or equal to 400mg/kg

And the DNA level from manuka pollen is less than Cq 36, which is approximately 3fg/µL.

For classification as multifloral manuka, the following chemicals all need to be present and at these levels:

- 4-hydroxyphenyllactic acid at a level greater than or equal to 1mg/kg
- 2-methoxybenzoic acid at a level greater than or equal to 1mg/kg
- 2'-methoxyacetophenone at a level greater than or equal to 1mg/kg
- 3-phenyllactic acid at a level greater than or equal to 20 mg/kg but less than 400mg/kg

And the DNA level from manuka pollen is less than Cq 36, which is approximately 3fg/µL

**MPI Manuka Markers**

Solvent extraction, LC-MS/MS analysis.
Analytica Laboratories Ltd., is approved by the New Zealand Ministry of Primary Industries to conduct this analysis under the Recognised Laboratory Programme (RLP Method 10.05).

**MPI Manuka DNA**

Samples were analysed as received by the Laboratory for Manuka Pollen DNA by pollen DNA extraction followed by qPCR in accordance with the MPI Technical Paper 2016/74 (modified) (96 well method).
Analytica Laboratories Ltd., is approved by the New Zealand Ministry of Primary Industries to conduct this analysis under the Recognised Laboratory Programme (RLP Method 10.04).

The DNA component of the MPI Manuka Honey Definition requires a Cq value of less than 36 to qualify for either a monofloral or multifloral manuka honey.