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Certificate of Analysis

Client:	Biohoney Limited	**Lab No:**	2984257	HGPv2
Contact:	Terry Bone	**Date Received:**	11-May-2022	
	C/- Biohoney Limited	**Date Reported:**	20-May-2022	**(Amended)**
	142 Collingwood Street	**Quote No:**	96232	
	Nelson 7010	**Order No:**		
		Client Reference:		
		Submitted By:	Terry Bone	

Sample Type: Honey

Sample Name:		2204MH20	2204MH263			
Lab Number:		2984257.1	2984257.2			
MPI Manuka 5 Attributes Analysis						
MPI Manuka Honey Classification		Monofloral Manuka Honey	Monofloral Manuka Honey	-	-	-
3-Phenyllactic acid (3-PA)	mg/kg	730	770	-	-	-
2'-Methoxyacetophenone (2'-MAP)	mg/kg	5.5	5.3	-	-	-
2-Methoxybenzoic acid (2-MBA)	mg/kg	7.7	8.3	-	-	-
4-Hydroxyphenyllactic acid (4-HPA)	mg/kg	8.1	9.5	-	-	-
Manuka DNA	Cq	24.80	26.52	-	-	-
Manuka Honey Analysis						
Dihydroxyacetone (DHA)	mg/kg	420	479	-	-	-
5-Hydroxymethylfurfural (HMF)	mg/kg	13.7	20.2	-	-	-
Methylglyoxal (MGO)	mg/kg	227	287	-	-	-
Non Peroxide Activity (NPA)*	% Phenol Equivalent	9.2	10.5	-	-	-

Analyst's Comments

Samples 1-2 Comment:
The results presented on the Certificate of Analysis have been rounded to an appropriate number of significant figures, based on the Uncertainty of Measurement of the methods performed. The 'MPI Manuka Honey Classification' has been determined using unrounded values. In cases where one or more values were close to the critical levels (as defined by MPI), there may be a seeming inconsistency between the classification and the rounded values reported.

Amended Report: This certificate of analysis replaces report '2984257-HGPv1' issued on 16-May-2022 at 11:53 am. Reason for amendment: Repeat analysis of sample 2 gave slightly higher results for 2MAP, however all results were within UoM of the original report. Repeat results are reported in this ammended report

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Honey

Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
3-in-1 Honey Method	Aqueous extraction, derivatisation. Analysis by uHPLC / UV-Vis (dihydroxyacetone, 5-hydroxymethylfurfural, methylglyoxal). In-house.	1.0 - 10 mg/kg	1-2

Sample Type: Honey			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Non Peroxide Activity (NPA)*	NPA is calculated from methylglyoxal using a correlation curve based on published data for NPA and the primary active ingredient, methylglyoxal. (1,2). (1) Isolation by HPLC and characterisation of the bioactive fraction of New Zealand manuka (Leptospermum scoparium) honey. C. J. Adams, et al. Carbohydrate Research 343 (2008) 651-659. (2) Corrigendum to "Isolation by HPLC and characterization of the bioactive fraction of New Zealand manuka (Leptospermum scoparium) honey" [Carbohydr. Res. 343 (2008) 651]. C. J. Adams, et al. Carbohydrate Research 344 (2009) 2609.	1.0 % Phenol Equivalent	1-2
MPI 5 Attributes Tests			
MPI Manuka Honey Classification	Evaluation of results against Ministry of Primary Industries (MPI) criteria for classification of monofloral and multifloral Manuka honey. General Export Requirements for Bee Products - 29 January 2018.	-	1-2
Manuka Honey Chemistry Profile			
3-Phenyllactic acid (3-PA)	Aqueous solvent extraction, dilution. LC-MSMS analysis. **RLP Official Test 10.05**.	5 mg/kg	1-2
2'-Methoxyacetophenone (2'-MAP)	Aqueous solvent extraction, dilution. LC-MSMS analysis. **RLP Official Test 10.05**.	0.5 mg/kg	1-2
2-Methoxybenzoic acid (2-MBA)	Aqueous solvent extraction, dilution. LC-MSMS analysis. **RLP Official Test 10.05**.	0.5 mg/kg	1-2
4-Hydroxyphenyllactic acid (4-HPA)	Aqueous solvent extraction, dilution. LC-MSMS analysis. **RLP Official Test 10.05**.	0.5 mg/kg	1-2
Manuka Honey PCR Profile			
Manuka DNA	Quantification of Manuka (*Leptospermum scoparium*) DNA by real time PCR. MPI Technical - Paper No: 2017/31 (modified). **RLP Official Test 10.04**.	1.00 Cq	1-2

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 13-May-2022 and 19-May-2022. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

B. D. Morris

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