

Certificate of Analysis

Page 1 of 3

Client:	Cosana New Zealand Limited	Lab No:	3435500	HGPV1
Contact:	Kelsey Sosing C/- Cosana New Zealand Limited PO Box 3330 Taupo 3351	Date Received:	21-Dec-2023	
		Date Reported:	27-Dec-2023	
		Quote No:	122734	
		Order No:	SORD23643	
		Client Reference:	CSNZ11893-CSJP batch test	
		Submitted By:	Kelsey Sosing	

Sample Type: Honey

Sample Name:	CSNZ11893 15-Dec-2023		
Lab Number:	3435500.1		
MPI Manuka Classification			
MPI Manuka Honey Classification	Monofloral Manuka Honey		
3-Phenyllactic acid (3-PA)	mg/kg	440	
2'-Methoxyacetophenone (2'-MAP)	mg/kg	9.1	
2-Methoxybenzoic acid (2-MBA)	mg/kg	2.8	
4-Hydroxyphenyllactic acid (4-HPA)	mg/kg	4.4	
Manuka DNA	Cq	27.07	
Manuka Honey Analysis			
Dihydroxyacetone (DHA)	mg/kg	687	
5-Hydroxymethylfurfural (HMF)	mg/kg	13.9	
Methylglyoxal (MGO)	mg/kg	273	
Non Peroxide Activity (NPA)*	% Phenol Equivalent	10.2	
Tutin Analysis			
Tutin Result Evaluation	Pass/Fail	PASS	
Tutin	mg/kg	< 0.010	
MRL as per Tutin in Honey Food Standard 2016	mg/kg	0.70	
Microbiological Analysis			
Aerobic Count 35°C	cfu / g	490	
Yeasts & Moulds	cfu / g	< 10	
Staphylococcus aureus	cfu / g	< 10	
Physical Analysis			
Colour	mm Pfund	67	
Moisture	g/100g as rcvd	17.6	
Diatase Analysis			
Diatase Activity	DN	12.1	
Glyphosate Analysis			
AMPA	mg/kg	< 0.010	
Glufosinate	mg/kg	< 0.010	



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised. The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Sample Type: Honey		
Sample Name:	CSNZ11893 15-Dec-2023	
Lab Number:	3435500.1	
Glyphosate	mg/kg	< 0.010

Analyst's Comments

Sample 1 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.

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 Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Honey			
Test	Method Description	Default Detection Limit	Sample No
Individual Tests			
Diastase Activity	Aqueous extraction, analysed using the Phadebas amylase method. Diastase activity is expressed as the diastase number, equivalent to Schade units.	2.0 DN	1
Moisture	Refractometer. Harmonised Methods of the International Honey Commission (2009). Method 1 - Determination of Moisture, Refractometric Method. (modified) RLP Official Test 10.02.	13.0 g/100g as rcvd	1
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
Colour	Determination of colour in honey using Honey Colour Analyser.	0 mm Pfund	1
Non Peroxide Activity (NPA)*	NPA is calculated from methylglyoxal using an industry accepted correlation curve based on published data ^{1,2} for NPA and the primary active ingredient, methylglyoxal. ¹ Isolation by HPLC and characterisation of the bioactive fraction of New Zealand manuka (<i>Leptospermum scoparium</i>) 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 (<i>Leptospermum scoparium</i>) honey" [Carbohydr. Res. 343 (2008) 651]. C. J. Adams, et al. Carbohydrate Research 344 (2009) 2609.	1.0 % Phenol Equivalent	1
Tutin Analysis in Honey	Solvent extraction, dilution. Analysis by LC-MS/MS. Results are representative of the liquid honey, not the sample as a whole. <i>Please note the Pass/Fail criteria is for extracted honey only. For comb honey tutin criteria please refer to the MPI Food Standard: Tutin in Honey.</i> <u>Tutin Result Evaluation (PASS/FAIL)</u> The PASS/FAIL result is based on comparison of the tutin result with the "Food Standard: Tutin in Honey (2016)". A result that falls at or BELOW the maximum permitted tutin level will give a PASS result. A result that falls ABOVE the maximum permitted tutin level will give a FAIL result. <u>Individual Sample Testing Recommended?</u> Where a tutin result for a composited sample is above the maximum permitted level, it is recommended that the individual samples are retested. Please contact the laboratory to arrange for individual sample retesting. RLP Official Test 8.42.	0.010 mg/kg	1
Aerobic Count 35°C	Automated MPN count on TEMPO AC, Incubated at 35°C for 22-28 hours. bioMérieux, TEMPO.	10 cfu / g	1
Staphylococcus aureus	Automated MPN count on TEMPO STA, Incubated at 35°C for 24-27 hours. bioMérieux, TEMPO.	10 cfu / g	1
Yeasts & Moulds	Automated MPN count on TEMPO YM, Incubated at 25°C for 72-76 hours. bioMérieux, TEMPO.	10 cfu / g	1
Glyphosate LCMSMS Analysis	Aqueous extraction, Analysis by LC-MS/MS. In-house. RLP Official Test 8.47.1.	0.010 mg/kg	1
MPI 5 Attributes Tests			

Sample Type: Honey			
Test	Method Description	Default Detection Limit	Sample No
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 - 27 October 2021.	-	1
Manuka Honey Chemistry Profile			
3-Phenyllactic acid (3-PA)	Aqueous solvent extraction, dilution. LC-MSMS analysis. MPI Technical Paper 2017/30 (modified) RLP Official Test 10.05.	5 mg/kg	1
2'-Methoxyacetophenone (2'-MAP)	Aqueous solvent extraction, dilution. LC-MSMS analysis. MPI Technical Paper 2017/30 (modified) RLP Official Test 10.05.	0.5 mg/kg	1
2-Methoxybenzoic acid (2-MBA)	Aqueous solvent extraction, dilution. LC-MSMS analysis. MPI Technical Paper 2017/30 (modified) RLP Official Test 10.05.	0.5 mg/kg	1
4-Hydroxyphenyllactic acid (4-HPA)	Aqueous solvent extraction, dilution. LC-MSMS analysis. MPI Technical Paper 2017/30 (modified) RLP Official Test 10.05.	0.5 mg/kg	1
Manuka Honey PCR Profile			
Manuka DNA	Quantification of Manuka (<i>Leptospermum scoparium</i>) DNA by real time PCR. MPI Technical - Paper No: 2017/31 (modified). RLP Official Test 10.04.	> 36 Cq	1

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

Testing was completed between 21-Dec-2023 and 27-Dec-2023. 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.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Shaun Clay BSc
Senior Technologist - Food and Bioanalytical