



## Certificate of Analysis

Page 1 of 1

<b>Client:</b>	Plus Honey Co, LTD	<b>Lab No:</b>	2464036	HGSP-4v1
<b>Contact:</b>	Emi Yamabe 702 Minami Senba Soho Bldg 4-10-5 Soho Minamisenba Chuo-Ku Osaka 542-0081 JAPAN	<b>Date Received:</b>	30-Oct-2020	
		<b>Date Reported:</b>	02-Nov-2020	
		<b>Quote No:</b>		
		<b>Order No:</b>		
		<b>Client Reference:</b>		
		<b>Submitted By:</b>	Emi Yamabe	

### Sample Type: Honey

<b>Sample Name:</b>	20100004		
<b>Lab Number:</b>	2464036.4		
<b>Manuka Honey Analysis</b>			
Dihydroxyacetone (DHA)	mg/kg	566	
5-Hydroxymethylfurfural (HMF)	mg/kg	10.4	
Methylglyoxal (MGO)	mg/kg	257	
Non Peroxide Activity (NPA)*	% Phenol Equivalent	9.9	

## 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
3-in-1 Honey Method	Aqueous extraction, derivatisation. Analysis by uHPLC / UV-Vis (dihydroxyacetone, 5-hydroxymethylfurfural, methylglyoxal). In-house.	-	4
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 ( <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	4

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

Testing was completed on 02-Nov-2020. 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



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.