



## Certificate of Analysis

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Lab Reference: 21-16580  
Submitted by: N/A  
Date Received: 13/04/2021  
Testing Initiated: 13/04/2021  
Date Completed: 14/04/2021  
Order Number: N/A  
Reference: N/A

### Report Comments

Samples were collected by yourselves (or your agent) and analysed as received at Analytica Laboratories. Samples were in acceptable condition unless otherwise noted on this report.  
Specific testing dates are available on request.

### Results Summary

#### 3in1

Laboratory ID	Sample ID	Dihydroxyacetone (DHA)	Methylglyoxal (MG)	Non-Peroxide Activity* (NPA)	Hydroxymethylfurfural (HMF)
<i>Units Reporting Limit</i>		mg/kg 40	mg/kg 8	%w/v phenol eq. 1.3	mg/kg 1
21-16580-1	210406	268	130	6.5	12

#### 3in1 Approver:

Hannah Crossan, M.Sc. (Hons)  
Senior Technician

#### Leptosperin

Laboratory ID	Sample ID	Leptosperin
<i>Units Reporting Limit</i>		mg/kg 20
21-16580-1	210406	203

#### Leptosperin Approver:

Hannah Crossan, M.Sc. (Hons)  
Senior Technician

## Method Summary

<b>3in1</b>	Determination of Dihydroxyacetone (DHA), Methylglyoxal (MG) and Hydroxymethylfurfural (HMF) by aqueous extraction, derivatisation, and UPLC analysis in accordance with in-house procedures.
<b>NPA</b>	<p>Non-Peroxide Activity (NPA) values are not directly measured by the laboratory, but are calculated from the measured methylglyoxal concentration in the honey according to the requirements of the client. The calculation is based on published data<sup>(†)</sup> comparing the NPA and methylglyoxal concentration measured in a range of honey samples. These calculated values are not accredited by IANZ and do not imply that the honey is or is not manuka honey. NPA values less than 5 are an estimate based on extrapolation of the relationship between methylglyoxal and NPA</p> <p><i>(†) 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. And, Corrigendum to "Isolation by HPLC and characterization of the bioactive fraction of New Zealand manuka (Leptospermum scoparium) honey" [Carbohydr. Res. 343 (2008) 651]. Carbohydrate Research 344 (2009) 2609. C. J. Adams, et al.</i></p>
<b>Leptosperin</b>	Aqueous extraction, dilution, analysis by UPLC in accordance with in-house procedures.