



## Certificate of Analysis

【モノフローラルマヌカハニー MGO100】

BATCH NO. **FB-C-21**

Freebees Honey 養蜂場  
129A Clifton Road, RD1  
Takaka 7183  
Attention: Avner Cain 養蜂家  
Phone:  
Email:

Lab Reference: 22-01075  
Submitted by: N/A  
Date Received: 14/01/2022  
Testing Initiated: 14/01/2022  
Date Completed: 17/01/2022  
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 in Honey

Laboratory ID	Sample ID	①	②	③	④
		Dihydroxyacetone (DHA)	Methylglyoxal (MG/MGO)	Non-Peroxide Activity* (NPA)	Hydroxymethylfurfural (HMF)
Units Reporting Limit		mg/kg 40	mg/kg 8	%w/v phenol eq. 1.3	mg/kg 1
22-01075-1	FB-C-21	413	111	6.0	3.5

#### 3in1 in Honey Approver:

Devon Nolan, BBiomedSc(Hons)  
Honey Chemistry Team Leader

- ①ジヒドロアセキトンは巣箱の中で熟成しメチルグリオキサールに変容します
- ②メチルグリオキサールはマヌカハニーの抗菌力を示す数値です
- ③非過酸化水素作用は抗菌力を示す数値です (UMF=6.0)
- ④ヒドロキシメチルフルフラールは低いほど良いです (1kgあたり40mg以下)

### Method Summary

**3in1** Determination of Dihydroxyacetone (DHA), Methylglyoxal (MG/MGO) and Hydroxymethylfurfural (HMF) by aqueous extraction, derivatisation, and UPLC analysis in accordance with in-house procedures.

**NPA** 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

<sup>(†)</sup> 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.