



Certificate of Analysis



Lab Reference: 19-15364
 Submitted by:
 Date Received: 8/05/2019
 Date Completed: 22/05/2019
 Order Number:
 Reference:

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.

AMENDED REPORT. This report replaces in full a previous version [R00] sent on 10/05/2019. Client details changed.

Results Summary

3in1

| Laboratory ID | Sample ID | Dihydroxyacetone (DHA) | Methylglyoxal (MG) | Non-Peroxide Activity* (NPA) | Hydroxymethylfurfural (HMF) |
|---------------|----------------------------------|------------------------|--------------------|------------------------------|-----------------------------|
| | <i>Units Reporting Limit</i> | mg/kg 10 | mg/kg 4 | %w/v phenol eq. 0.8 | mg/kg 1 |
| 19-15364-27 | 19JA4 | 419 | 436 | 13.6 | 36 |

3in1 Approver:

Michael Hutcheson, B.Sc.
 Senior Technologist

Method Summary

3in1 Determination of Dihydroxyacetone (DHA), Methylglyoxal (MG) and Hydroxymethylfurfural (HMF) by aqueous extraction, derivatisation, and UPLC analysis.

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(†) 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

(†) *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.