

Client:



Rosendals Biprodukter AB
Per Fyhlund
Tjushultsgatan 19
287 32 Strömsnäsbruk
Sweden

Our reference no. : PI1705040010
Product : Honey
Sample description / Batch : **Rosendals Biprodukter 2017**
: **Bäst Före: 01-09-2018, 7392611408799**
Sample received on / transported by : 03.05.2017 via Postal Service **Seal** : Original filling
Sample temp. when received / stored : rt **Sampling** : Client
Packaging / Quantity : Glass, twist off / 250g **Start / End of analysis** : 06.05.2017 / 08.05.2017

ANALYSIS REQUESTED: 13C Isotope Analysis by EA/LC (C4/C3-Sugars) (101158)

| Parameter | Result | Unit | Method |
|-----------------------------|--------|---------|------------------------------|
| Protein * | -26.50 | d13C(‰) | PM DE01_026 (a) ¹ |
| Honey | -26.90 | d13C(‰) | PM DE01_026 (a) ¹ |
| Fructose (F) | -26.85 | d13C(‰) | PM DE01_094 (a) ² |
| Glucose (G) | -26.91 | d13C(‰) | PM DE01_094 (a) ² |
| Disaccharides | -27.39 | d13C(‰) | PM DE01_094 (a) ² |
| Trisaccharides | n.a. | d13C(‰) | PM DE01_094 (a) ² |
| Oligosaccharides | n.a. | d13C(‰) | PM DE01_094 (a) ² |
| Delta d13C (F-G) | 0.06 | d13C(‰) | PM DE01_094 (a) ² |
| Delta d13C (max.) | 0.89 | d13C(‰) | PM DE01_094 (a) ² |
| C4 Sugar Content | 0.00 | % | PM DE01_026 (a) ¹ |
| F/G Ratio | 1.02 | | PM DE01_094 (a) ² |
| Portion of Disaccharides | 4.22 | % | PM DE01_094 (a) ³ |
| Portion of Trisaccharides | n.d. | % | PM DE01_094 (a) ³ |
| Portion of Oligosaccharides | n.d. | % | PM DE01_094 (a) ³ |

LC-IRMS is not an official method for F/G ratio; n.a.: not analyzed; n.d.: not detected < 0.7 %; d13C value in permil. vs. V-PDB standard

* not considered for Delta d13C (max.) calculation if affected by high yeast content (Yeast determination from Delta d13C (max.) >= 2.1 ‰ on)

SPECIFICATIONS OF PURE HONEY:
Delta d13C (F - G): not more than +/- 1.0 ‰
Delta d13C (max.) of individual d13C values: not more than +/- 2.1 ‰
C4 sugar content: < 7 %; portion of oligosaccharides: n.d.

(a) : accredited under terms of DIN EN ISO/IEC 17025. (na) : not accredited method. (1) AOAC 998.12
(2) Apidologie 39/5 (2008) 574-587 (3) Apidologie 39/5 (2008) 574-587; % related to total sugars.
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continued on the next page...



21705090132
PA219280

Interpretation:

The sample meets the specifications of pure honey. Foreign sugars were not detected.

Dr. Tanja Hörner
Lab Supervisor, MSc. Marine Geosciences

Client:



21705090117
PA219280

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|-------------------------------------|---|-------------------------|---------------------------|
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| | : Bäst Före: 01-09-2018, 7392611408799 | | |
| Sample received on / transported by | : 03.05.2017 via Postal Service | Seal | : Original filling |
| Sample temp. when received / stored | : rt | Sampling | : Client |
| Packaging / Quantity | : Glass, twist off / 250g | Start / End of analysis | : 08.05.2017 / 09.05.2017 |

ANALYSIS REQUESTED: Honey profiling by NMR (101750)

| Parameter | Result | Method |
|--------------------------------|---------|-----------------------|
| NMR profile | typical | NMR (na) ¹ |
| Indications for sugar addition | no | NMR (na) ¹ |

(a) : accredited under terms of DIN EN ISO/IEC 17025. (na) : not accredited method.
(1) Bruker Honey Profiling Database 1.0.0

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Interpretation:

The NMR profile is typical for honey. There were no deviations detected according to the reference database. Regarding the examined parameters the sample corresponds to the legal regulations. (Honey directive 2001/110/EC dated Dec. 20th, 2001; Article 1 in connection with Annex II).

C. Kunert

Dr. Christof Kunert
Responsible Scientist