

Test Report No. 210-1008589

QSI GmbH - Flughafendamm 9a - D-28199 Bremen

Sirin Bal Gida San. Tic. Ltd. STi
Ms. Canan Tandogan
Karapinar Mah. 1192 Sk. No: 6/A
Altinordu / Ordu
TURKEY

Date: 27-Sep-2022

Customer No.:	14123	Sample No.:	429761
Product:	Honig/Honey		
Label: Flower Honey 9500			
Arrival Date:	22-Sep-2022	Start / End of Analysis:	22-Sep-2022 / 27-Sep-2022
Kind/Origin:	Turkey Flower	Packaging:	Kunststoff / plastic
Seal:	ohne/without	Temp.:	RT

VA40262 (2022-09) Authenticity, Isotope analysis, 13C-EA-IRMS (AOAC 998.12, mod.^) + 13C-LC-IRMS (C4/C3-sugar)*, Honey**

Parameter	Method	Unit	Target Value****	Result
Protein (P)	AOAC 998.12	d-13C‰		-23,55
Honey (H)	AOAC 998.12	d-13C‰		-25,19
Fructose (F)	LC-IRMS	d-13C‰		-25,26
Glucose (G)	LC-IRMS	d-13C‰		-25,12
Disaccharides	LC-IRMS	d-13C‰		-23,66
Relative Percentage of Dissacharides*	LC-IRMS	%		1,27
Trisaccharide	LC-IRMS	d-13C‰		n.b.
Relative Percentage of Trisaccharides*	LC-IRMS	%		n.n.
Oligosaccharides	LC-IRMS	d-13C‰		n.b.
Relative Percentage of Oligosaccharides*	LC-IRMS	%		n.n.
F/G ratio	LC-IRMS			1,23
Difference d-13C Fructose-Glucose (F-G)	LC-IRMS	d-13C‰	- 1 to + 1	-0,14
Difference d-13C (max.) all sugar fractions	LC-IRMS	d-13C‰	<= 2,50	1,60
Difference Protein-Honey (P-H)	AOAC 998.12	d-13C‰		+1,64
C4-sugar-content**	AOAC 998.12	%	<= 7,00	0,00

Accredited method

n.b.: not determinable n.n.: not detectable ($\leq 1\%$ (relative) related to all sugar fractions LC-IRMS); LC-IRMS is not an official method for F/G ratio

* related to all sugar fractions LC-IRMS; ** related to average $\delta^{13}\text{C}$ value of corn syrup of -9.7‰ vs. V-PDB Standard

*** Apidologie for LC-IRMS (2008, Volume 39, Issue 5, pp 574-587); **** QSI-criterion authentic honey: all target values passed

^ Weighing, sample preparation, determination of carbon isotopes, for honey and protein

The expanded relative measurement uncertainty is 3% (coverage factor $k=2.58$; confidence interval 99%) without taking the sampling into account.

Conclusion:

The values determined in the course of the investigation carried out correspond to the QSI criteria for authentic honey and, in our opinion and according to current scientific knowledge, do not indicate the addition of foreign sugars. With regard to the investigated parameters the honey corresponds to the legal regulations (EU Honey directive 2001/110/EC, Annex 2 Part 1).

Quality Services International GmbH

Version 0



Jürgen Wehlitz
Test Manager
Food Chemist

This examination is the basis for special decision guidance.

The test results are exclusively related to the items tested for this sample in the above mentioned time frame for analysis. Method and measurement uncertainty details are available upon request. This report is allowed to be copied completely and unchanged but not in extracts. Furthermore, as well as for statements regarding conformity our General Terms and Conditions of Business are applicable.

Test Report No.: 210-1008589 Version 0

Page: 2 of 2