

# Test Report No. 210-1024746

QSI GmbH - Flughafendamm 9a - D-28199 Bremen

Medino d.o.o. Krnjevo  
 Ivan Grujic  
 Bulevar Oslobođenja 29  
 11319 Krnjevo  
 SERBIA

Date: 25-Oct-2022

<b>Customer No.:</b>	<b>11802</b>	<b>Sample No.:</b>	<b>435928</b>
Product:	Honig/Honey		
<b>Label: 111022</b>			
Arrival Date:	20-Oct-2022	Start / End of Analysis:	20-Oct-2022 / 25-Oct-2022
Kind/Origin:	Serbia Meadow	Packaging:	Glas / glass
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‰		-24,87
Honey (H)	AOAC 998.12	d-13C‰		-25,40
Fructose (F)	LC-IRMS	d-13C‰		-25,29
Glucose (G)	LC-IRMS	d-13C‰		-25,43
Disaccharides	LC-IRMS	d-13C‰		-26,07
Relative Percentage of Disaccharides*	LC-IRMS	%		8,74
Trisaccharide	LC-IRMS	d-13C‰		-26,04
Relative Percentage of Trisaccharides*	LC-IRMS	%		3,6
Oligosaccharides	LC-IRMS	d-13C‰		-24,00
Relative Percentage of Oligosaccharides*	LC-IRMS	%		1,08
F/G ratio	LC-IRMS			1,16
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	2,07
Difference Protein-Honey (P-H)	AOAC 998.12	d-13C‰		+0,53
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 d13C value of corn syrup of  $-9.7\text{‰}$  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.: 210-1024746 Version 0

Page: 2 of 2

# Test Report No. 210-1024744

QSI GmbH - Flughafendamm 9a - D-28199 Bremen

Medino d.o.o. Krnjevo  
Ivan Grujic  
Bulevar Oslobođenja 29  
11319 Krnjevo  
SERBIA

Date: 21-Oct-2022

<b>Customer No.:</b>	<b>11802</b>	<b>Sample No.:</b>	<b>435928</b>
Product:	Honig/Honey		
<b>Label: 111022</b>			
Arrival Date:	20-Oct-2022	Start / End of Analysis:	20-Oct-2022 / 21-Oct-2022
Kind/Origin:	Serbia Meadow	Packaging:	Glas / glass
Seal:	ohne/without	Temp.:	RT

## VA161 (2019-07) Tradeanalysis: Moisture, HMF, Diastase, pH, Acidity, Honey-Directive

Parameter	Method	Unit	Result
Moisture	ASU L40.00-2/1, 2019-07	%	16,9
HMF (Hydroxymethylfurfural)	ASU L 40.00-10/1, 2021-11	mg/kg	9,3
Diastase activity	ASU L 40.00-1, 2019-07 mod.^	DN Schade	28,9
pH-value	ASU L 40.00-6, 2011-06		4,3
Acidity*	ASU L 40.00-6, 2011-06	meq/kg	31,0
Accordance with EC Honey Directive			Honig/honey

Accredited method

\* if acidity is < 17 (or < 10 in specific honey types), proline content will be determined automatically

^Weighing and amount of buffer; adaptation to Random Access Analyzer

The expanded relative measurement uncertainty is 0.8 % (Moisture); 9 % (HMF); 12 % (Diastase); 0.5 % (pH-value); 10 % (acidity) (coverage factor k=2.58; confidence interval 99 %) without taking the sampling into account.

### Conclusion:

The determined values are in accordance with the requirements of Council Directive 2001/110/EC Annex II of 20. December 2001 relating to Honig/honey.



Isabel Tipke  
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.: 210-1024744 Version 0

Page: 2 of 2