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NORD MAZEDONIEN

Report date 29.12.2023

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Analytical report

AR-23-TH-013892-01-PTH04

**Sample Code**

296-2023-00014178

Sample name

Sample 1- Honey - Mavrovo

Packaging

Plastic cup

Sampler

Client

Number sample tubes

1

Type of seal

Without seal

Amount

approx. 160 g

Reception temperature

room temperature

Reception date time

21.12.2023

Start / End of analysis

21.12.2023 / 29.12.2023

Test results**Sensory analysis****THH25 Sensory Analysis of Honey (#)**
Method ICS SOP 520-02 (2018-08)**sensory indication****Color:** bright, transparent**Consistency:** viscous, starting crystallization**Odor:** typical for honey**Taste:** sweet, bloomy, fruity, aromatic, typical for honey

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Eurofins Food Integrity Control Services GmbH · Berliner Straße 2 · D-27721 Ritterhude

The place of execution and jurisdiction is Walsrode - lower district court Walsrode HRB 206619.

Managing Director: Dr. Kurt-Peter Raezke

VAT No.: DE301552996

Hypovereinsbank SWIFT-BIC: HYVEDE33 IBAN: DE77 2073 0017 7000 0022 00

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Microscopy

THH21 Pollen Analysis - Bot. & Geogr. Origin (ADV) (#)

Method DIN 10760 mod. (2002-05) [ICS SOP 520-11 (2018-03)]

Modification: Sample amount

Microscopic examination of pollen

Number of pollen counted: 500

Number of types of pollen identified: 30

Other components of sediment: elements of fungus, spores, bee hair, crystalline matter, wax particles, plant tissue, vegetable fibers, black particles

Yeast content / 10 g honey: <10.000 (very low)

Starch content: < 5/500* Pollen

Amount of honeydew particles: low

Pollen from nectarless plants: 56

Very frequent pollen > 46 %

89% Rhamnaceae/diff. genera/Kreuzdorngewächse/Buckthorn Family

Frequent pollen 16 - 45 %

none

Single pollen 3 - 15%

7% Campanulaceae/Campanula spec./Glockenblume/Bell Flower°

Isolated pollen < 3 %

1% Boraginaceae/Echium spec./Natternkopf/Vipers Buggloss

Apiaceae/Eryngium/Mannstreu/Sea Holly

Araliaceae/Hedera spec./Efeu/Ivy

Asteraceae/Carduus spec./Ringdistel/Plumeless Thistle

Asteraceae/Centaurea cyanus/Kornblume/Cornflower

Boraginaceae/Anchusa spec./Ochsenszunge/Bugloss

Brassicaceae/Brassica spec./Kohl-Pflanzen/Cabbage

Caryophyllaceae/diff. genera./Nelkengewächse/Pink Family

Cistaceae/Helianthemum/Sonnenröschen/Sun Rose°

Convolvulaceae/diff. genera./Windengewächse/Bindweed

Fabaceae/Trifolium pratense spec./Rotklee/Red Clover

Fabaceae/Trifolium repens spec./Weissklee/White Clover

Fabaceae/Trifolium/Klee/Clover

Fabaceae/Vicia spec./Bohne/Bean

Fagaceae/Quercus spec./Eiche/Oak°

Hypericaceae /Hypericum spec. /Echtes Johanniskraut/St. John's Wort°

Lamiaceae/Thymus spec./Thymian/Thyme

Liliaceae/diff. Spec./Lilie/Lily

Papaveraceae/Argemone/Stachelmohn/Mexican Poppy

Papaveraceae/Papaver spec./Mohn/Poppy°

Pinaceae/Pinus/Pinie/Pine°

Plantaginaceae/Plantago spec./Wegerich/Fleawort°

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Poaceae/diff.genera/Süßgräser/Graminea°
 Polygonaceae/Polygonum aviculare/Vogelknöterich/Birdweed°
 Polygonaceae/Rumex spec./Ampfer/Sorrel°
 Ranunculaceae /Clematis spec./Waldrebe/Clematis
 Scrophulariaceae/Verbascum/Königskerze/Mullein
 Unknown pollen
 °nectarless plant

Physico-chemical analysis

THH05 Electrical conductivity (20 °C) (#)

Method ICS SOP 510-06 (2021-04)

Conductivity at 20°C

Result	Uncertainty	Unit
0.59	(± 0.05)	mS/cm

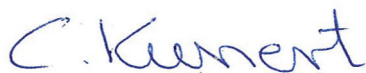
(#) = Eurofins Food Integrity Control Services is accredited for this test.

Assessment

According to the pollen-analysis, organoleptic properties, and corresponding physical-chemical parameters (electrical conductivity) the above-mentioned sample may be called "Blossom Honey" (Honey directive 2001/110/EU, Article 2 from June 23rd, 2014, in connection with Annex I and relevant literature: BMEL (2022). Neufassung der Leitsätze des Deutschen Lebensmittelbuchs für Honig. GMBI 2022, S. 429-430).

Based on the current scientific knowledge, the analyzed pollen spectrum indicates "Southeastern Europe (Macedonia possible)" as regional origin (Honey Directive 2001/110/EC; Article 2 in connection with Annex I and relevant literature).

Signature



Head of Laboratory / Laborleiter (Dr. Christof Kunert)

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Sampler	Client
Number sample tubes	1
Type of seal	Without seal
Amount	approx. 160 g
Reception temperature	room temperature
Reception date time	21.12.2023
Start / End of analysis	21.12.2023 / 29.12.2023

Test results

Physico-chemical analysis

THH01 5-Hydroxymethylfurfural (HMF) (#)
Method ICS SOP 510-08 (2019-09)

5-Hydroxymethylfurfural

Result	Uncertainty	Unit
2.1	(± 0.3)	mg/kg

THH02 Moisture (#)
Method DIN 10752-2 2018-09

Water content

Result	Uncertainty	Unit
17.2	(± 0.2)	g/100 g

THH03 pH Value (#)
Method ICS SOP 510-06 (2021-04)

pH-value

Result	Uncertainty	Unit
4.3	(± 0.1)	

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THH04 Diastase activity (#)

Method ICS SOP 510-04 (2021-04)

	Result	Uncertainty	Unit
Diastase activity	38.0	(± 3.0)	DN

THH06 Free acid (#)

Method ICS SOP 510-06 (2021-04)

	Result	Uncertainty	Unit
Free acidity	16	(± 2)	mmol/kg

THH07 Water insoluble substances (#)

Method DIN10743 2013-05

	Result	Uncertainty	Unit
Water insoluble matter	0.022	(± 0.003)	g/100 g

THH08 Sugars in Honey (LC-ELSD) (#)

Method DIN 10758 (1997-05) mod. [ICS SOP 510-02 (2021-03)]

Modification: ELSD Detection; Downscaled sample preparation; LC flow rate

	Result	Uncertainty	Unit
Fructose	37.0	(± 3.0)	g/100 g
Glucose	28.3	(± 2.3)	g/100 g
Fructose / Glucose	1.31	(± 0.10)	
Glucose+Fructose	65.2		g/100 g
Sucrose	<0.1 *		g/100 g
Turanose	2.2	(± 0.5)	g/100 g
Maltose	1.3	(± 0.3)	g/100 g

THH11 Glucose / Moisture Ratio (Calculation) (#)

Method calculation

	Result	Uncertainty	Unit
Glucose / Moisture	1.65		

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* = below indicated quantification level

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Assessment

Regarding the examined parameters the sample corresponds to the legal regulations (Honey directive 2001/110/EU, Article 2 in connection with Annex II and relevant literature: BMEL (2022). Neufassung der Leitsätze des Deutschen Lebensmittelbuchs für Honig. GMBI 2022 S. 429-430).

Remark:

Values in brackets: expanded measurement uncertainty ($F = 2.58$; 99%).

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