



MDA\_V025 v3.0

HONEY METAGENOMIC DNA ANALYSIS. TEST REPORT	
SAMPLE INFORMATION	
Laboratory ID	Example 1
Sample number	
Client name	
Client e-mail	
Registration time / Reporting time	

REFERENCE INFORMATION	
International Database of Genomes (IDG)	IDG_v1.0 (May 2025)
Number of studied objects in the IDG	831 790
Number of plants in the IDG	147 325
Number of bacteria in the IDG	108 038
Number of fungi in the IDG	88 221
Number of insects, mammals, etc in the IDG	362 808
Metagenomic Database of Authentic honey	MDA2_v1.1 (July 2025)
Number of samples in the MDA	1141

RESULTS	
Number of DNA sequences per sample	9 148 123
Number of detected studied objects	214 (bracken)

AUTHENTICITY ANALYSIS	
Conclusion of the authenticity analysis	AUTHENTIC

SUPPLEMENTARY MATERIALS	
<p><b>Supplementary_1_krona_all:</b> An interactive Krona plot reflects <b>all the organisms</b> detected in the analyzed sample and their quantities through the percentages of their detected DNA sequences.</p> <p><b>Supplementary_2_krona_plants:</b> An interactive Krona plot reflects <b>all plants detected</b> in the analyzed sample and their quantities through the percentages of their detected DNA sequences.</p> <p>The results are presented in an HTML file that opens in the browser.</p> <p><b>Supplementary_3_pathogens_and_parasites:</b> The Excel file includes the presence of 20 selected honeybee pathogens and parasites in the examined sample.</p>	

COMMENTS
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**The definition of authenticity in this report is as follows:**

**Authentic:** The DNA profile of the analyzed sample is similar to the profiles of Celvia CC’s created *Metagenomic Database of Authentic honey* (MDA2\_v1.1). The sample has a very high probability of being genuine honey.

**Non-authentic:** The DNA profile of the analyzed sample is dissimilar to the profiles of Celvia CC’s created *Metagenomic Database of Authentic honey* (MDA2\_v1.1). The sample has a very high probability of being non-genuine honey.

**Decision rule:** A sample is considered authentic if the taxonomic similarity of its DNA profile exceeds a predefined threshold compared to the authentic honey DNA profiles stored in the Celvia CC MDA2\_v1.1 database. If the similarity remains below the threshold, the sample is considered non-authentic.

MDA v2 test **sensitivity is 89.5%**, which means that the test correctly identifies 89.5% of non-genuine (adulterated) honey samples.

MDA v2 test **specificity is 99.6%**, which means that the test correctly identifies 99.6% of genuine (authentic) honey samples.

**Important information**

Honey Metagenomic DNA Analysis (MDA v2) describes the honey’s composition and authenticity. The DNA profile is compared against the different types of honey DNA profiles in the honey DNA profile database created by Celvia CC (*Metagenomic Database of Authentic honey*, MDA2\_v1.1). MDA v2 is an untargeted analysis of all DNA sequences present in honey. Therefore, the results may differ from those obtained using other methods, such as pollen analysis, PCR-based DNA metabarcoding, NMR, etc. All results apply solely to the tested sample as provided by the customer. Celvia CC takes no responsibility for any interpretations, conclusions, or actions based on our analysis results. Reverse engineering of the analysis process or methodology is strictly prohibited. In the case of any disputes, all matters will be governed and resolved by the laws of Estonia. Without the laboratory's permission, only full reproduction of the report is allowed.

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Approved by	

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