

PP-258 [Beekeeping Technology and Quality] Geographical Origin Authentication of Slovenian Honey

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Background/purpose

Starting in 2026, origin labelling regulations will require the exact country or countries of origin and the respective percentages of honey from each country to be indicated in descending order. This will likely lead to increased inspection controls. Our preliminary research aimed to examine the Slovenian honey market and evaluate the effectiveness of pollen analysis – one of the methods currently used in official controls for determining botanical and geographical origin.

Problem description

Slovenia, a small country with diverse vegetation, shares botanical similarities with neighbouring regions, which could present a challenge in the precise determination of geographical origin. Our objective was to simulate official honey inspections in Slovenian markets and use the preliminary findings to identify the advantages and limitations of this method.

Methodology

We collected 51 honey samples from different Slovenian regions and two control samples from non-EU countries from six different markets in autumn 2024. The pollen analysis was carried out in an accredited laboratory, which is also used for official controls. In case of deviation from the expected pollen spectrum or other anomalies, additional analyses were conducted; measurement of physico-chemical parameters and hydroxymethylfurfural (HMF) content as well as sensory analysis.

Results and conclusions

In 28 samples, some deviations were found and in case of 14 samples, interviews and consultations with beekeepers were conducted. Our findings confirmed that pollen analysis effectively identifies samples with pollen spectra atypical for our vegetation region, making it a valuable tool for verifying honey's geographical origin and detecting potential fraud. However, due to similarities in vegetation with neighbouring countries, the method has limitations in determining exact geographical origin with high accuracy. In addition, pollen analyses can establish suspicion of other forms of honey fraud (relating to botanical origin or foreign sugars). The study highlights the need for a larger database on local honey types and honey from different countries, and the importance of a correct interpretation of pollen analysis results.

Practical implications for beekeepers

These findings will enable Public Advisory Service in Beekeeping to advise local beekeepers in the case of official inspections.