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DIFFERENTIATION OF HONEY PRODUCED IN TWO PDO REGIONS IN PORTUGAL USING FTIR-ATR ANALYSIS

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Introduction: The chemical composition of honey in a Protected Designation of Origin (PDO) reflects the unique characteristics of the region, ensuring authenticity through rigorous standards.

Aims: To identify the consistent analytical parameters within a particular PDO and assess the possibility of distinguishing them using rapid techniques, such as FTIR-ATR (Fourier Transform Infrared Spectroscopy with Attenuated Total Reflectance).

Materials and Methods: The honey samples from two Portuguese PDO regions were assessed for various parameters including acidity, pH, moisture content, water activity, proline content, electrical conductivity, total phenols and flavonoid contents, and colour. FTIR-ATR spectroscopy was used as a tool to examine both the overall variability within each region and the differences within and between regions.

Results: The present study validates the parameters that remain consistent across both PDOs (Figure 1, between the green lines), as well as those that differ between each PDO. Influencing factors for PDO1 include pH, electrical conductivity, and PFUND colour, while PDO2 is characterized by higher values of acidity, proline, total phenols, and a* and b* CIELab coordinates. Using FTIR-ATR, it is feasible to differentiate between honeys from the two PDO regions.

Conclusion: With the physicochemical parameters of honey evaluated in the present study, it is possible to distinguish between honeys from two PDO regions. Additionally, FTIR-ATR is a powerful technique for easily distinguishing between these two PDO regions.

Keywords: *FTIR-ATR, honey, PDO, Chemical parameters*

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