

P46: DEVELOPMENT AND VALIDATION OF A UPLC-QTOF MS METHOD FOR THE DETERMINATION OF FLAVONOIDS AND PHENOLIC ACIDS IN HONEY

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Honey is a natural sweetener and as such it can be greatly affected by fraudulent practices like mislabeling (blossom honey sold as honeydew honey) or the addition of illegal substances (syrup or water). Phenolic compounds, flavonoids and phenolic acids, are the most abundant antioxidant nutritive constituents and proved to be beneficial to human health. The concentration and the presence of these compounds are strictly connected to the geographical and/or the botanical origin of the honey [1]. To this end, a method has been optimized and validated for the simultaneous determination of 25 phenolic compounds.

At first, three different extractants were tested in order to find the solvent which yields the highest recoveries for the phenolic compounds and it was revealed that ethyl acetate was the most suitable. Afterwards, the separation of the analytes was performed in an ultra-high pressure liquid chromatography system combined with a high resolution quadrupole time of flight mass spectrometry detector (UPLC-qTOF MS). The developed method was tested in oak honeydew samples and it was validated based on the Eurachem guidelines. R² was over 0.99 in the most analytes. Mean recoveries ranged from 75 to 105% in each spiked level. RSD % values was from 0.90 % to 14.1% concerning repeatability and from 1.64 % to 22.0% according to intermediate precision. LODs ranged from 0.10 to 0.76 mg L⁻¹. Finally, the developed method quantified 9 and semi-quantified 3 phenolic compounds in oak samples, importing new data on the limited information about the phenolic content of oak honey.

References

[1]. M Camina, Jose, Roberto G Pellerano, and Eduardo J Marchevsky, *Geographical and botanical classification of honeys and apicultural products by chemometric methods. A review.*, Current Analytical Chemistry 8.3, pp. 408-425. 2012.