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Detection and classification of honey samples using FTIR spectroscopy and multivariate statistical analysis

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Abstract

Honey is a sweet and natural food product produced by bees which is mainly composed of sugar. Honey is also a rich source of amino acids, vitamins, minerals and other biologically active compounds. These properties lead to the widespread use of honey and increase the demand for honey around the world. Therefore, it is so important to make sure that the honey is genuine or counterfeit. In this study, FTIR spectra of 6 honey samples of forty-herb honey and Ziropfen honey in 10%, 30% and 50% water concentrations and 2 glucose syrup with 10% and 30% concentrations were acquired and analysed using multivariate statistical analysis. The classification results indicate a proper distinction between genuine honey and counterfeit sample. The aim of this study was to provide a cheap, fast and accurate classification method for honey authentication and shows that FTIR method combined by multivariate statistical analysis is a useful tool for testing the authenticity of honey.

Keywords: Fourier transform infrared spectroscopy, honey, multivariate statistical analysis

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