

# ADVANCES IN HONEYDEW HONEY ANALYSIS FOR THE DETERMINATION OF ITS BOTANICAL ORIGIN

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Honeydew which is excreted by aphids feeding on conifers in Germany and Central Europe is an important food source for bees in late summer. The honeys produced of it are of a dark color and have an especially spicy, malty taste. Many consumers like these properties and accept the high prices. So far, honeydew honeys are distinguished mostly by their sensory properties. The classical microscopy pollen analysis failed due to the missing pollen. In order to protect the quality and the authenticity of these rare expensive honeys, a project was launched and funded in Germany by The Federal Ministry of Food and Agriculture (BMEL) called "BoogIH" - Botanical, zoological and geographical Identification of Honeydew honey. Aside of the TU Dresden, the Apicultural State Institute (Dr. Schroeder, University of Hohenheim), the University of Wuppertal (Prof. Dr. Lohaus, Molecular Plant Research/Plantbiochemistry), HYDROISOTOP GmbH (Dr. Voerkelius, Schweitenkirchen), and Intertek Food Services GmbH (Dr. Rimkus, Bremen) are involved. The aim is to provide an accurate definition of honeydew honeys using objective chemical-analytical methods in order to promote their marketing.

For this purpose, Professor Speer's working group has developed a multi-method for the extraction of various honey constituents. To the best of our knowledge, this is the first report on the simultaneous extraction of honey components from one honey solution. The final method allows for the determination of polar, nonpolar as well as charged compounds followed by chromatographic analysis using

- (a) HPLC-ELSD for sugar analysis,
- (b) UHPLC-PDA-MS/MS for phenolics and other hydrophobic components, and
- (c) HPLC-PDA-MS/MS for amino acids and other nitrogen-containing substances of honey.

The chromatographic profiles of authentic honey samples, especially of firs, spruces, and pines were compared and characteristic substances were identified by using chemometrics. A differentiation will be achieved by means of a discriminant analysis. The first results of our study will be presented.

**Keywords:** *honeydew honey, authentication, chemometrics, UHPLC-PDA-MS/MS, ELSD*

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