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Robinin as a marker for the addition of filtered acacia honey to heather honey

Janine Schlafke, Isabelle Kölling Speer, Karl Speer
Department of Food Chemistry, Technische Universität Dresden, Germany

Expensive monofloral honeys, such as heather honey, are often adulterated by stretching them with sugar syrup or with inexpensive, often filtered, low-phenolic honey. Beckmann et al. were able to demonstrate this adulteration for the first time. After isolating the saccharase, it was separated into several bands by electrophoresis. All honeys studied contained the bands typical for the saccharase in almost the same intensity, while in filtered honeys one band was missing. In tests, it was possible to reliably detect the addition of about 15% of filtered honey to an unfiltered honey.

However, since the published method is quite laboriously and time-consuming, it should be examined whether the flavonoids, specifically the glycosides, can also be used to detect an addition of filtered honey, especially of a low-phenolic such as acacia honey. For this honey, the flavonoid glycoside robinin is known (Truchado et al).

Robinin and other flavonoid glycosides were analyzed by automated solid-phase extraction using HPLC-PDA/MS and quantified via external calibration in SRM mode.

In seven acacia honeys, the glycoside robinin was detected in levels ranging from 560 µg/kg to 970 µg/kg, and also in the nectar itself. In 18 other types of monofloral honeys studied (in a total of 100 samples), robinin could not be detected at all, or only in traces, so robinin can be postulated as a marker for acacia honey.

In model experiments, different proportions of a typically low-phenolic acacia honey were added to a phenolic-rich heather honey. Even at an addition of less than 10% acacia honey, robinin was detectable in the PDA chromatogram. Using MS detection adulteration with about 5% acacia honey can still be detected.

Literature:
Beckmann, K.; Beckh, G.; Luellmann, C.; Speer, K. (2011): Characterization of filtered honey by electrophoresis of enzyme fractions. Apidologie 42 (1), 59

Truchado, P.; Ferreres, F.; Sabatini, A. G.; Tomás-Barberán, F. A. (2008): Nectar Flavonol rhamnosides are floral markers of acacia (Robinia pseudacacia) honey. J. Agric. Food Chem. 56 (19), 8815–8824