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Czech J. Food Sci.

**M. Voldřich, A. Rajchl,
H. Čížková, P. Cuhra:**

Detection of Foreign Enzyme Addition into the Adulterated Honey

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Natural honey contains several enzymes, which are produced by bees (salivary secretion) and some are found in the nectar or pollen. The most important enzymes are amylases, invertases, glucosidases, catalases, fosfatases and other. The activity of diastase (α -, β -, γ -amylase) is the important quality parameter of honey, according to the Directive 2001/110/CE the diastase activity (diastase number) must not be less than or equal to 8, for some kinds of honey also higher or equal to 3 (in these cases the HMF must not be higher than 15 mg/kg). Diastase is used as a marker to evaluate the freshness or the heat damage of honey. When honey is adulterated by addition of inverted sucrose or hydrolysed starch namely high fructose corn syrup (HFCS), then such dilution of honey leads to the reduction of diastase number. Such adulteration can

be masked by addition of foreign amylases, e.g. bakery mould amylases. Recently several suspect samples of honey with inconsistent diastase number were found in the market. The possibilities of detection of foreign amylase addition based on the comparison of diastase determination using the Schade and Phadebas procedures are evaluated. The both tests are based on the determination of hydrolytic activity (the Schade number is expressed as g of starch hydrolysed 1 h at 40° C per 100 g honey), but the results depend on the substrate used for the trial (according to the standard procedure an insoluble blue dyed cross-linked type of starch should be used). The results of Schade test are therefore often affected by the choice of substrate. The model samples of honeys with addition of foreign amylase (*Aspergillus oryzae*) were analysed, the methods of adulteration detection based on the substrate specificity of enzymes is proposed. Keywords: falsification; honey; diastase number; Schade; amylase addition

Keywords:

Schade; amylase addition

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