Abstract

This bachelor thesis was focused on the determination of potassium and iron content in the selected samples of honey. These elements have been determined by the atomic absorption spectrometry with flame atomization. The samples used in the analysis were representing the species of flower, honeydew, and mixed honeys. In most of the cases, the samples came from small private beekeepers. For comparison, there were also some samples of purchased honey included.

At first, with using the standard solutions, there were optimized the height of the beam above the burner and the acetylene flow rate used as a fuel. The optimal conditions for the determination of iron content were: the height was 6 mm and the flow rate was 3.0 L min^{-1}. For the determination of the potassium content, the optimal conditions were: the height was 7 mm and the flow rate was 2.5 L min^{-1}. To check the accuracy of the measurements, a series of iron solutions with a concentration of 10.0 mg L^{-1} were prepared and the obtained signals were compared. Under the optimal conditions for each element there was calculate the limits of detection and quantification and repeatability of measurements.

Last but not least, the measurement of selected elements followed. Honey sample solutions were prepared by dissolving of 6.0 g of honey in 50 mL of stabilization solution for F-AAS measurement. The potassium content was in range 316 – 6583 mg kg^{-1}. All concentrations of iron were lower than the limit of detection.

This thesis led to comparison of the types of honey according to the content of selected elements, specifically content of potassium. In conclusion, it can be stated that the concentration of potassium is higher in honeydew honey samples compared to the flower honey samples.