

## **Abstrakt EN**

This bachelor thesis deals with the determination of copper in the form of copper ions in selected food supplements by atomic absorption spectrometry. The first step of the experiment was to find the optimal measurement conditions for the parameters: beam height above the burner edge, burner horizontal position, fuel flow rate, burner angle and spectral interval width. Subsequently, the calibration dependence was determined and the basic measurement characteristics were calculated: repeatability, sensitivity, limit of detection ( $0.019 \text{ mg dm}^{-3}$ ) and limit of quantification ( $0.065 \text{ mg dm}^{-3}$ ) at the burner position  $0^\circ$ . Interference studies were performed for the presence of iron, manganese and sodium elements in selected food supplements because of their increased concentrations. These selected food supplements were analysed: Spektrum 50, Supradyn Energy Complex, Center from A to iron, GS Extra Strong Multivitamin, Caltrate Plus, DAS Gesunde Plus, A-Z Multispektrum and Calibrium 50 Plus. Selected samples were converted to solutions using three procedures: decomposition in water at room temperature, decomposition in nitric acid at room temperature and decomposition in nitric acid at high temperature. The determination of copper itself was performed using a GBC 933 AA spectrometer and the results were statistically processed. The experimentally determined amount of copper was compared with the amount stated by the manufacturer. The most suitable method of decomposition proved to be the use of nitric acid at high temperature, when the concentrations of copper corresponded most accurately to the declared amounts, and thus atomic absorption spectrometry is a suitable method for determining the copper content of food supplements.

## **Key words**

Copper, food supplements, atomic absorption spectrometry, optimization, sample decomposition