

## Abstract

Inductively coupled plasma optical emission spectrometry is method which enables to determine total content of various elements in the periodic table. My work is aim for coupling of ICP-OES, as element specific detector, with vapour generation system. This coupling enables separation of analyte from matrix and determination of form of element which can be transforming to gaseous phase. This is demonstrated on examples of determination of sulfane in water samples, determination of free and total sulfur dioxide in wine and determination of  $\text{Se}^{\text{IV}}$  in algae *Chlorella*. Hydrogen sulfide and acid volatile sulfides in water were transformed, by acidification to gaseous phase and subsequently detected by ICP-OES. The proposed method provides results comparable to iodometric titration in the tested concentration range 0,06-22,0 mg/l. Limit of detection for the determination of hydrogen sulfide by this method is 0,03 mg/l. Determination of free and total sulfur dioxide is based on releasing of gaseous sulfur dioxide by addition of acid, sulfur from  $\text{SO}_2$  is measured by ICP-OES. Free  $\text{SO}_2$  is released from sample by acidification, total  $\text{SO}_2$  can be determined after hydrolysis of bond forms by sodium hydroxide.

Second part is aim for fractionation of selenium in algae *Chlorella*. For this purposes simple fractionation scheme were arrange. This scheme is consist of extraction steps, which enclosed extraction by water, extraction by SDS, extraction by isopropanol/chloroform mixture. In extracts was selenium determined by ICP-MS method. Further speciation analyses of selenium in alga *chlorella* were performed by LC-ICP-MS method.