

ABSTRACT

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Title of the diploma thesis: On-line solid phase extraction using complexing reagents

Following diploma thesis was focused on testing of conditions for zinc ions analysis by solid phase extraction using sequential injection analysis system (SIA).

The thesis includes introduction to solid phase extraction and SIA system. To optimize the method, concentrations of 0.1 – 100.0 $\mu\text{mol/l}$ zinc sulfate were used. Also, testing of elution solutions with various concentrations of acetonitrile and derivatization reagent 4- (2-Pyridylazo) resorcinol (PAR) was performed. Three columns with sorbents C18, CN and C8 of dimensions 10 x 1.5 mm were tested. The carrier and sample diluent was 0.1 mol/l ammonium acetate pH 6. The aim was to extract and determine zinc ions at the lowest concentrations possible. Detection was performed at 430, 490 and 630 nm by using a spectrophotometric detector.

The most suitable column for analysis was C8 (10 x 1.5 mm). The most suitable eluent was 50% ACN. The applicable concentration of PAR reagent was 5 $\mu\text{mol/l}$. Tested parameters were calibration range 0.5 – 5.0 $\mu\text{mol/l}$ and method repeatability.