

# ABSTRACT

Charles University in Prague, Faculty of Pharmacy in Hradec Králové

Department of analytical chemistry

Candidate: Petra Bolinová

Supervisor: Doc. PharmDr. Hana Sklenářová, Ph.D.

Title of Diploma Thesis: **Fluorescence detection of metsulfuron methyl in the SIA system**

This diploma work deals with fluorescence detection of quinine and metsulfuron methyl (MSM) in aqueous media and organic solvents using sequential injection analysis. This method was chosen to detect herbicide for easy sample application, its low consumption fast results evaluation and higher sensitivity of fluorescence compared to spectrophotometric detection.

Chininium sulphate solution was used only as a model substance. The main subject of monitoring was the fluorescence detection of MSM in various organic solvents. Sample of MSM was dissolved in different solvents or mixture of solvents (water, acetone, a mixture of water: acetonitrile, chloroform) and in some cases pH was adjusted and UV degradation of the parent compound was carried out, pH adjustment was ensured by the addition of concentrated H<sub>2</sub>SO<sub>4</sub> to pH = 2. Degradation of MSM was tested with UV at 254 nm and 366 nm.

The most advantageous of the tested organic solvents in terms of a signal provided was chloroform. Signal intensity of MSM in chloroform solutions compared to the signals of MSM in other organic solvents (acetone, a mixture of H<sub>2</sub>O:ACN in different ratios) was increased by more than 90%. Chloroform solutions were measured and calibration curve with a linear increase of the fluorescence signal in the concentration range 5 - 25 mg/l with a R = 0,999 was found.