Abstract

In this diploma thesis, a method using the sequence analysis technique for spectrometric and spectrofluorimetric analysis of three selected analytes from the group of phenothiazines (chlorpromazine, levomepromazine and promethazine) was developed and optimized. The determination is based on the oxidation reaction of phenothiazines with cerium(IV) ions in an acidic medium, which produces a color product that is detected by VIS spectrometry or spectrofluorimetry. The measurement conditions for sequence analysis were optimized and evaluation was performed by nonlinear calibration in the dynamic range of 3−320 mg dm^{-3} for VIS spectrometric detection and 0.3−50.0 mg dm^{-3} for spectrofluorimetric detection. The influence of water-soluble common excipients (fructose, glucose, lactose), which are often part of medicinal products, was investigated. The developed sequential injection analysis with both detections was successfully applied to authentic samples of drugs (Plegomazine, Tisercine and Prothazine) containing the analyzed phenothiazines. The measurement results were in good agreement with the used reference method of direct UV spectrometry. The advantages of developed SIA method with VIS spectrometric and spectrofluorometric detection are its automation, speed, low consumption of reagent and a wide dynamic range of analyte concentrations, enabling its use, for example, for routine product control in the pharmaceutical industry.

Key words: sequential injection analysis, chlorpromazine, levomepromazine, prometh-azine, phenothiazine