

Abstract

Capillary zone electrophoresis is an analytical method frequently used in many laboratories for solving various analytical problems. This diploma thesis describes one of many applications of capillary zone electrophoresis using a unique laboratory apparatus composed of a short capillary and dual conductivity/UV detector placed in one detection point of the separation capillary.

In the first part of this thesis, the laboratory apparatus was tested by the separation of small inorganic and organic ions. Sodium, potassium, tyramine and histidine ions were used to test the two parts of the dual detector. Experimentally obtained mobilities of these ions were compared with those calculated from the tabulated values.

In the second part, the apparatus was used for determination of analytes in samples with more complex matrixes, pharmaceuticals Acylcoffin and B-komplex produced by Zentiva, a.s. One analyte was chosen from each pharmaceutical preparation for determination of its concentration in the preparation, caffeine from Acylcoffine and thiamine from B-komplex. The concentrations were calculated using three different calibration methods and the experimentally obtained values were compared with those specified by the pharmaceuticals producer.

Key words:

capillary electrophoresis; short capillary; contactless conductometric detection; UV detection; biologically active compounds.