Abstract

The aim of this bachelor thesis was the development of the method for the determination of tryptamine and tryptophan in biological material by capillary electrophoresis. Total length of silica capillary with inner diameter 75 μm was 50.0 cm and effective length was 8.5 cm, injection of the sample was on the short end of the capillary. The composition of background electrolyte, injection method and on-line preconcentration techniques were optimized. Background electrolyte was acetic acid of 1,6 mol/l concentration, sample was injected hydrodynamically with pressure of 5 kPa for 5 s and driving voltage was –30 kV. The analytes were detected at wavelength of 220 nm and the inner standard aniline was detected at wavelength of 200 nm. Time of separation was only 2 minutes, which is the main advantage of this method. The limits of detection were 0.002 mmol/l for tryptamine and 0.001 mmol/l for tryptophan, the limits of quantification were 0.006 mmol/l for tryptamine and 0.005 mmol/l for tryptophan. Repeatability of peak areas and migration times of standards of 0,045 mmol/l concentration related to inner standard showed values of relative standard deviation lower than 5 %. The use of optimized method was tested on *Nicotiana tabacum* leaves and on cultivating medium of oomycete *Pythium oligandrum.*

Key words

tryptophan, tryptamine, capillary electrophoresis