

Abstract

This thesis was focused on the determination of the temperature influence upon analysis of phenolic acids and fluoroquinolone antibiotics using high performance liquid chromatography. Analysis was performed on Zorbax SB C18 (50 x 4.6 mm; 1.8 μm) analytical column using ultra – violet detection (UV) for both phenolic acids and fluoroquinolon antibiotics.

The optimization of separation conditions was carried out for determination of phenolic acids and fluoroquinolone antibiotics. The effect of composition and concentration of aqueous part of mobile phase and especially the effect of temperature was investigated.

The gradient elution was used for determination of phenolic acids. The mobile phase was formed by 0.1% formic acid and methanol. The isocratic elution was used for determination of fluoroquinolone antibiotics and the mobile phase was also formed by 0.1% formic acid and methanol.

Accelerating of analysis and saving time and used solvents by using higher temperature were the main goals of this thesis. This premise came true in the analysis of phenolic acids. The analysis was faster with good peak resolution. The results for fluoroquinolone antibiotics were not better than basic 25°C measurement. Contrariwise, lower than laboratory temperature was more advantageous for their analysis.

System suitability tests were performed for phenolic acids and fluoroqionolone antibiotics by injection of solutions in ten series using the optimized conditions. Repeatability was found excellent for retention times and also for peak areas (RSD < 1%).