

Abstract

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Title of diploma thesis: LC-MS monitoring of selected antimicrobial compounds in waters

The monitoring of residues of human and veterinary antibiotics in surface water is gaining more and more importance due to the increasing resistance of bacteria. This work deals with the modification of an HPLC-MS/MS method to obtain pilot data on the occurrence of antibiotics in surface water. The method is focused on the analysis of 30 antibiotics from the groups of β -lactams, macrolides, lincosamides, aminoglycosides, fluoroquinolones, tetracyclines and sulfonamides.

The method was performed on a UHPLC instrument Agilent 1200 Infinity series with MS Agilent model 6495 triple Quad. Separation of antibiotics was performed on reverse phase using gradient elution and tandem mass spectrometry. An electrospray in both positive and negative polarity was used to ionize the analytes.

The method was used for the pilot analysis of surface water samples in the Czech Republic. Samples from 15 rivers and streams were analysed. The most frequently found antibiotics were sulfamethoxazole and clarithromycin.

Key words: HPLC, MS, Antibiotics, Surface water