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ROZPRAWA DOKTORSKA

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**Oznaczanie wybranych leków z różnych grup
terapeutycznych w wodach powierzchniowych
z zastosowaniem technik chromatograficznych**

Promotor pracy:

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Gliwice 2011

Chromatographic methods for the determination of different drug mixtures using HPLC and Ultra HPLC techniques with spectrophotometric detectors (UV, DAD) and fluorescence detector (FL) were developed. The drugs were separated within 20-25 minutes using HPLC technique and 2-3,2 minutes using Ultra HPLC technique. The drugs that were determined included non-steroidal anti-inflammatory drugs (NSAIDs), such as paracetamol, metamizole sodium, aspirin (salicylic acid), ketoprofen, diclofenac, naproxen and ibuprofen; the corticosteroids dexamethasone and prednisolone; the β -blockers carvedilol, metoprolol, propranolol and sotalol; and the anticonvulsant carbamazepine. As a pre-concentration step, solid phase extraction (SPE) was developed using three extraction columns: Oasis HLB, NEXUS and Bon Elut ENV. The Oasis HLB yielded the best recovery efficiency, over 90% for most of the drugs. For each chromatographic method LOD and LOQ values were determined using calibration curves. Low values of LOD and LOQ allowed the determination of drugs in surface water samples. The chromatographic methods were applied for the determination of chosen drugs in water samples, mostly from Polish rivers, from different locations. Some of the drugs were determined in those rivers, however the concentrations were mostly under 0,3 $\mu\text{g/L}$.