



Transport and transformation of some common pharmaceuticals in Säva Brook, Sweden

Joakim Riml (1), Anders Wörman (1), Uwe Kunkel (2), and Michael Radke (2)

(1) Royal Institute of Technology, Stockholm, Sweden (riml@kth.se), (2) University of Bayreuth, Bayreuth, Germany

Detection of pharmaceutical residues in surface water is common in urbanized areas. Although the occurrence and source of these micropollutants are known, knowledge of their behavior in is still poorly understood. A tracer test was conducted in Säva Brook in order to study the hydrological transport and chemical transformation of some common pharmaceuticals along a stream reach. Simultaneous injections were performed with Bezafibrate, Clofibrac acid, Diclofenac, Ibuprofen, Metoprolol and Naproxen, as well as the more inert solutes Uranine and Rhodamine WT. The experiment was evaluated with respect to the change in mass flux at five successive sampling stations distributed along 16 km of the Brook, and mathematical models were used in order to interpret transport and reaction mechanisms. The interpretation indicates that a major degradation pathway would be biodegradation occurring in the hyporheic zone.