



## **Understanding reactive transport of three emerging contaminants by flow-through small column experiments**

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Understanding the solute transport processes in soil porous media is fundamental to predict the fate of contaminants in the Nature, to protect groundwater from pollution, and finally to assure high water quality to meet environmental, urban and agricultural demands. Of increasing environmental concern is the fate and transport of organic and reactive emerging micropollutants within this subsurface region; the actual mechanisms are poorly understood. Miscible displacement column experiments for the transport and eventual fate assessment of organic micropollutants are valuable experiments as boundary conditions for field studies are poorly known. In this study, a preliminary investigation of the properties and the one dimensional solute transport behavior of three organic micropollutants, the antibiotic sulfamethoxazole and two  $\beta$ -blocking agents pindolol and sulfamethazine, in laboratory test in saturated column experiments. All three were have been detected in a detrital quaternary aquifers. The first phase of the investigation examined the transport behavior of a single compound constituent (sulfamethoxazole, pindolol, sulfamethazine) with a laboratory-scale column, focusing on transport mechanisms. The second phase, examined a bi-component system behavior (competition/synergies, geochemical facilitated transport, degradation) within the column setting.