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Isolation and Concentration of Aqueous Photolysis Products

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Poster Presentation P73

ISOLATION AND CONCENTRATION OF AQUEOUS PHOTOLYSIS PRODUCTS

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The photoactivity of nitrous acid coupled with its abundance in the atmosphere and natural waters make it a key component of photochemistry in the environment. The photolysis of aqueous nitrous acid in the presence of benzene, a radical scavenger, is thought to produce phenol, p-nitrophenol, p-nitrosophenol, and possibly other phenol-related solutes. These products are present at very low concentrations in the photolyzate, making them difficult to detect and quantify. The objective of this research is to develop an analytical procedure that will isolate, concentrate, and quantify such solutes. Solid phase extraction was selected as the most promising technique for isolating and concentrating the solutes, and UV-Vis spectrophotometry was selected for analysis and quantification. Several solutions for pretreatment of the solid were examined for their effectiveness in helping solute adsorption. Several solutions for washing the adsorbed solutes from the solid were also examined. Results to date are quite promising, indicating that, despite a loss of some of the solute, a procedure has been developed that concentrates solutes by several orders of magnitude in a reproducible fashion