



ABSTRACTS

Determining the presence and concentrations of EPA semi-volatile organic compounds in the Colorado River

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Our experiment tested water from the Colorado River near the Timberlake Biological Field Station for any of the 44 EPA Method 525.3 semi-volatile organic compound pesticides. We began by creating increasingly diluted EPA standards, which we ran in a gas chromatograph to create calibration curves for each of the 44 SVOCs. We then filtered water samples collected by grab method from the Colorado River and used a vacuum apparatus to pull the water through a single-use SPE cartridge, which collected any relevant compounds from the water sample as it passed through. Using ethyl acetate and dichloromethane, we were able to elute the compounds from the cartridge, then use nitrogen gas and a warm water bath to create a concentrate we could put in an autosampler vial. By running these concentrated samples in the gas chromatograph, we could compare their results with those of the EPA standards and determine the presence and concentrations of any of the 44 SVOCs. Our results indicated that there are small concentrations of SVOCs in the Colorado River adjacent to the Field Station. The low concentrations of pesticides that we found are unlikely to present a threat to the local aquatic ecosystem, especially with acute exposure. However, further testing regarding chronic exposure to low concentrations of pesticides would be beneficial, as there are currently very few studies on this issue.