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Sensing of halogenated aromatic hydrocarbons in water with a cavitand coated piezoelectric device

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Highlights

- **Micropollutant sensing:** The coating of a piezoelectric transducer with an electropolymerized quinoxaline cavitand produced a highly sensitive and reproducible sensor for the in-flow detection of aromatic hydrocarbons in water.

Abstract

A study leading to the development of a piezoelectric sensing device for environmental monitoring of aromatic micropollutants in water is reported. A Piezoelectric Quartz Crystal (PQC) was functionalized through electropolymerization of a quinoxaline cavitand, known to possess remarkable capabilities in selectively trapping aromatic compounds through multiple π - π and CH- π interactions. The obtained film was characterized *via* X-ray Photoelectron spectroscopy (XPS) to elucidate its chemical composition. The design and synthesis of the new quinoxaline cavitand functionalized at the upper rim with a bithiophene moiety suitable for electropolymerization is described. The molecular structure of

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