

Detection and removal of bisphenol A by electrochemical methods using modified ITO electrode

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Wastewater from various types of chemicals for the plastics industry is now entering the aquatic environment. There are some endocrine disruptors in the wastewater that are harmful to the human body at low concentrations. Among them, 2,2-bis (4-hydroxyphenyl) propane, (bisphenol A), is a precursor in production of major classes of resins and plastics, thus bisphenol A is released into the environment by manufacturing process and end-consumer. Therefore, the in-situ detection and removal of bisphenol A are highly anticipated. The conventional detection of those endocrine disruptors use HPLC and GC-MS, etc. All of which requires time and complicated pre-preparation of sample which may result in inaccuracy and is not able to control the discharge timely. In this study we aim to develop a novel electrochemical detection method of bisphenol A by using a modified ITO electrode. When bisphenol A is electropolymerized on ITO, the capacitance and electrochemical properties presented by cyclic voltammetry was changed. The electrochemical detection can be applied to other endocrine disruptor chemicals besides bisphenol A in natural environment.