

Removal characteristic of bisphenol A using protein-based sorbent and microbe-based sorbent

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Bisphenol A (BPA) is a representative endocrine disrupting chemical (EDC). A number of studies on BPA removal from water environment have been reported. A large percentage of BPA was removed in conventional wastewater treatment, but the removal efficiency of BPA was not stable depending on the report. Physical and chemical treatment technologies such as adsorption and ozonation have also been investigated. For example, the adsorption by activated carbon, general sorbent to separate organic contaminants, was investigated. However, the selective removal of BPA was not possible. In our previous study, we searched for the peptide sequence with specific affinity to BPA. Using this peptide moiety, we constructed the protein-based sorbent including the BPA affinity peptide and microbe-based sorbent of recombinant E.coli with the surface displayed peptide. Then, the adsorption capacity of BPA was studied. Compared to control protein and wild type E.coli, the peptide fused protein and recombinant E.coli showed improved the removal efficiency and selectivity toward BPA.