

Removal of Bisphenol A (BPA) from Aqueous Solutions Using Cellulose-Based Materials as Adsorbents

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Abstract

Bisphenol A (BPA) is a widely recognized endocrine disruptor detected extensively in the natural environment, including surface waters. This compound is commonly used to manufacture various consumer products, such as bar soaps, lotions for the face and body, shampoos, sunscreens, nail polishes, and household detergents, as well as numerous other industrial applications. Research indicates that BPA is linked to a rise in various health issues globally, including infertility in both men and women, disruptions in normal child growth and development, and heightened risks of hormone-related cancers like breast, prostate, and ovarian cancer. Several effective technological methods exist for removing BPA from aqueous environments. However, adsorption has proven to be more efficient and faster than alternative removal techniques, offering advantages such as low cost, simplicity, and reduced harmful by-products. Owing to its abundance, biocompatibility, renewability, non-toxicity, and biodegradability, Cellulose is considered a promising material for the development of bio-based adsorbents for BPA removal. This review seeks to summarize recent research focused on the removal of BPA from water using cellulose-based adsorbents. The literature demonstrates that cellulose composite materials have shown encouraging results for the elimination of BPA from water.

Keywords

Cellulose-based Materials, Endocrine Disrupting Chemicals, Adsorption, Bisphenol A, Aqueous Solution, Adsorbents