



## Facile route synthesis of novel graphene oxide- $\beta$ -cyclodextrin nanocomposite and its application as adsorbent for removal of toxic bisphenol A from the aqueous phase



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### ABSTRACT

In-situ synthesized novel nanocomposite graphene oxide- $\beta$ -cyclodextrin (GO-CD) was applied as adsorbent for swift adsorption and elimination of hazardous endocrine disrupting compounds, such as bisphenol A (BPA), from the solvent phase of an aqueous solution. Endocrine disrupting compounds are highly toxic substances that cannot be removed from treated wastewater through conventional methods. The optimized values of effective parameters were 10 min (contact time), 25 mg (adsorbent dosage), 9 (pH) and 100 mgL<sup>-1</sup> (initial concentration) these values were optimized using batch adsorption study. The equilibrium adsorption and kinetics data were well fitted and in good agreement with Langmuir adsorption isotherms and pseudo-second order kinetic adsorption model. The Q<sub>max</sub> of GO-CD was approximately 373.4 mg·g<sup>-1</sup>, which is significantly higher than that of existing adsorbents. Hence, the developed adsorbent could be efficiently used for rapid adsorption and removal of noxious impurities.

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