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Adsorptive removal of cationic methylene blue dye by *kappa*-carrageenan/poly(glycidyl methacrylate) hydrogel beads: Preparation and Characterization

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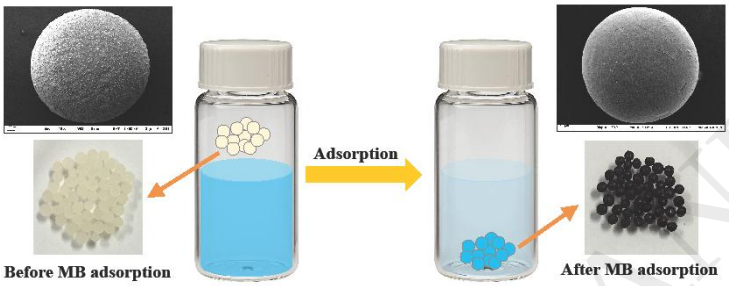
Graphical abstract



Highlights:

- A novel adsorbent was prepared from *kappa*-carrageenan/poly(glycidyl methacrylate)
- Blending of the homopolymers resulted in improvements required for adsorption
- The obtained blend hydrogel was used as an adsorbent for cationic dyes
- Adsorption efficiency of fabricated adsorbent was studied under several conditions
- κ-carrageenan/PGMA hydrogel beads were effective for dye- wastewater purification

Abstract
Kappa-carrageenan hydrogel containing numerous functional groups used as an environmental-friendly adsorbent shows limitations due to its high water solubility, low gel strength and low regeneration ability. In this work, a new biopolymeric-based hydrogel of κ-carrageenan/poly(glycidyl methacrylate)