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Free radical synthesis of nanosilver/gelatin-poly (Acrylic Acid) nanocomposite hydrogels employed for antibacterial activity and removal of Cu(II) metal ions

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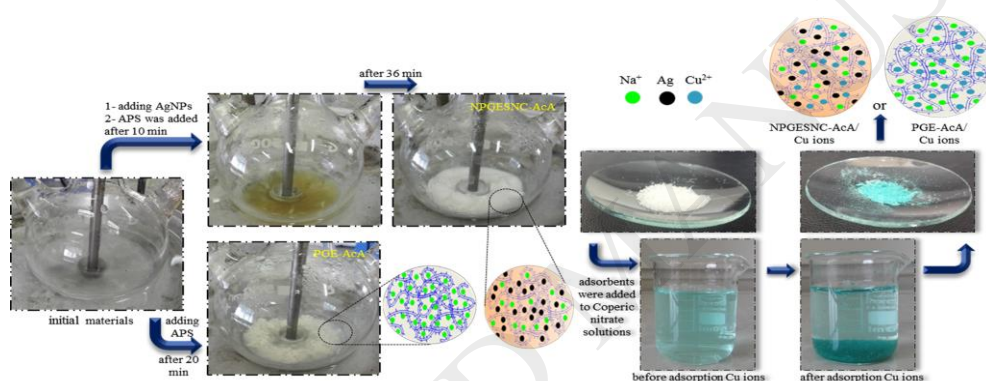
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Graphical abstract



Highlights

- The PGE-ACE hydrogel and NPGESNC-AcA nanocomposite hydrogel as effective adsorbents were successfully prepared.
- The determined average range of AgNPs size inside NPGESNC-AcA nanocomposite hydrogel was 33-63 nm.
- The adsorbents exhibited higher sorption capacity for the NPGESNC-AcA nanocomposite hydrogel.
- The kinetic of adsorption for the NPGESNC-AcA nanocomposite hydrogel (40 min) was more rapid than the PGE-AcA hydrogel (50 min).
- The nanocomposite hydrogel showed an excellent capability in inhibiting the bacteria growth of *E. coli* and *S.aureus*.

Abstract

The present work involves the synthesis of porous gelatin/AcA (PGE-AcA) hydrogel and novel porous gelatin-silver/AcA (NPGESNC-AcA) nanocomposite hydrogel, and

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