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Polyethersulfone nanofiltration membrane embedded by chitosan nanoparticles: fabrication, characterization and performance in nitrate removal from water

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Highlights:

- Chitosan nanobiopolymer (CS-NP) was incorporated into PES membrane.
- Addition of CS-NP to the PES membrane matrix improved water permeability.
- Skin-layer thickness, porosity and hydrophilicity influenced by presence of CS-NP.
- Nitrate removal capability of modified membranes showed a significant enhancement.
- Membranes offered noticeable pH sensitivity in nitrate removal.

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