

Supplementary Material

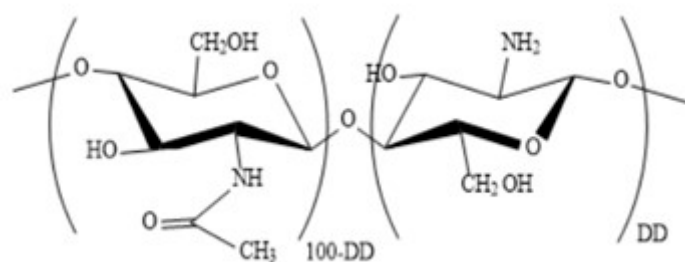


Figure S1. The chemical structure of chitosan.

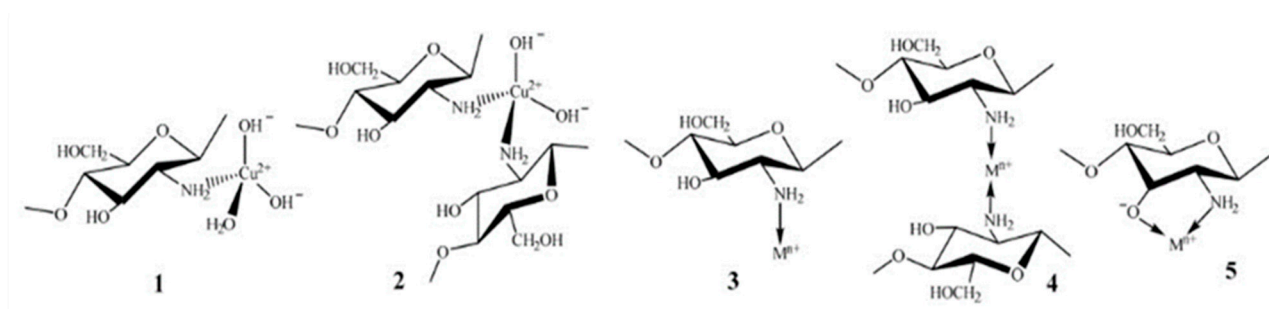


Figure S2. Schematic representation of intramolecular and intermolecular chelation of Cu^{2+} ions with chitosan units.

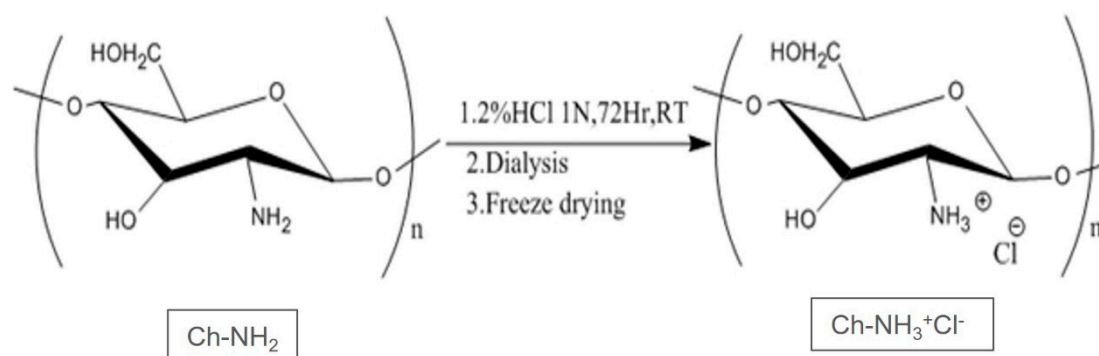


Figure S3. Preparation of chitosan hydrochloride, $\text{Ch-NH}_3^+\text{Cl}^-$.

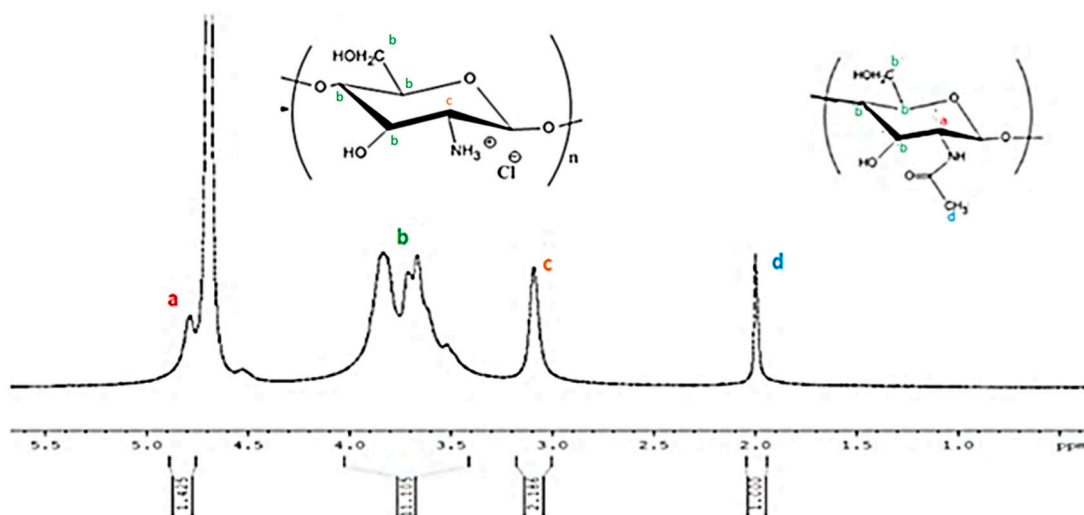


Figure S4. ^1H NMR spectrum of chitosan hydrochloride, $\text{Ch-NH}_3^+\text{Cl}^-$.

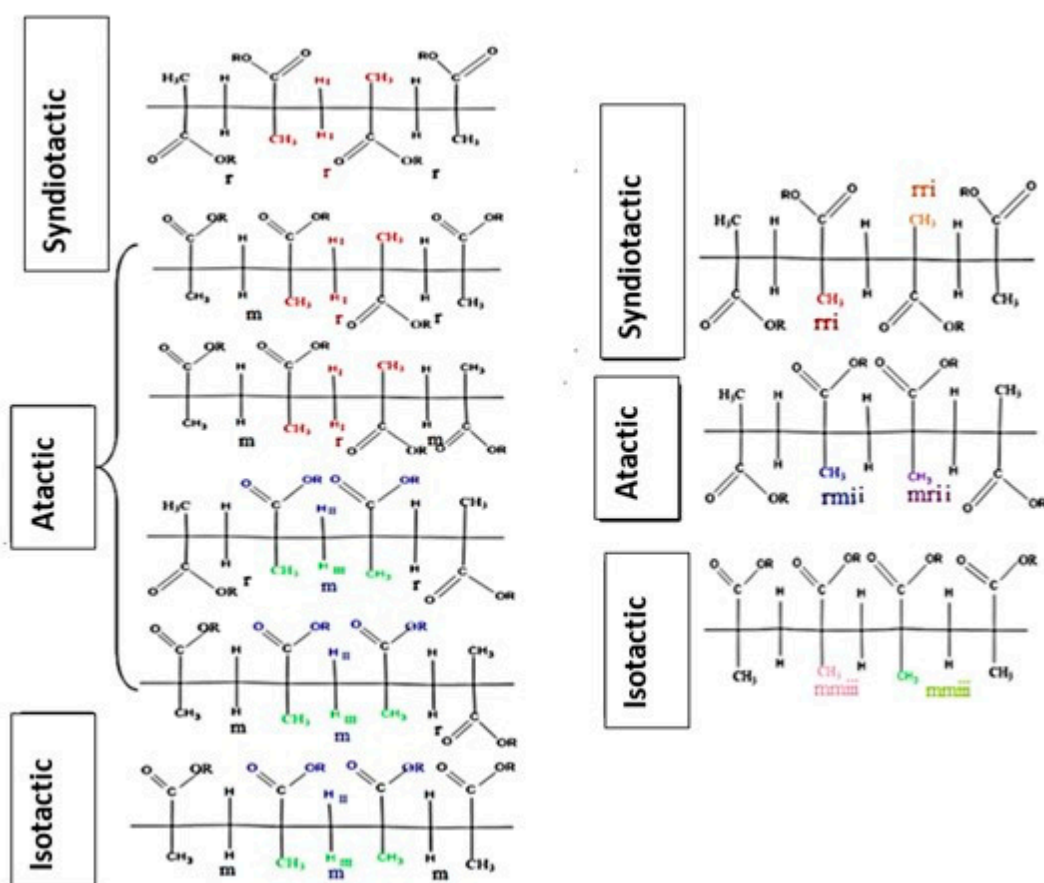


Figure S5. Schematic representation of stereochemical configurations of GMA units in PGMA, with respect to -H (left) και α-CH₃ (right), along the methacrylate polymer chain. (The more shielded -H or α-CH₃ is symbolized by "i" and the less shielded ones by "iii").

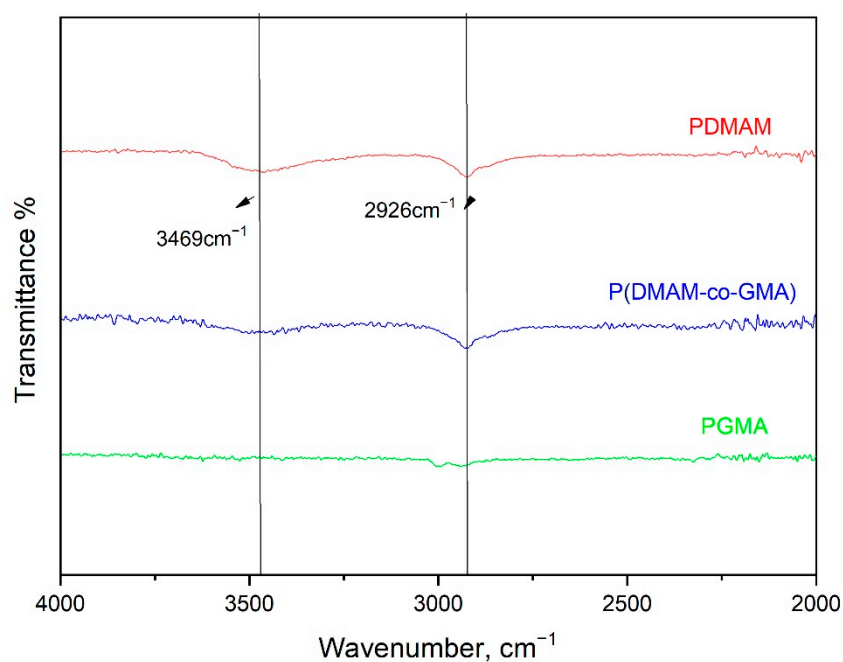


Figure S6. ATR-FTIR spectrum in the 2000-4000 cm^{-1} region of the copolymer P(DMAM-co-GMA), in comparison with the spectra of the homopolymers PDMAM and PGMA.

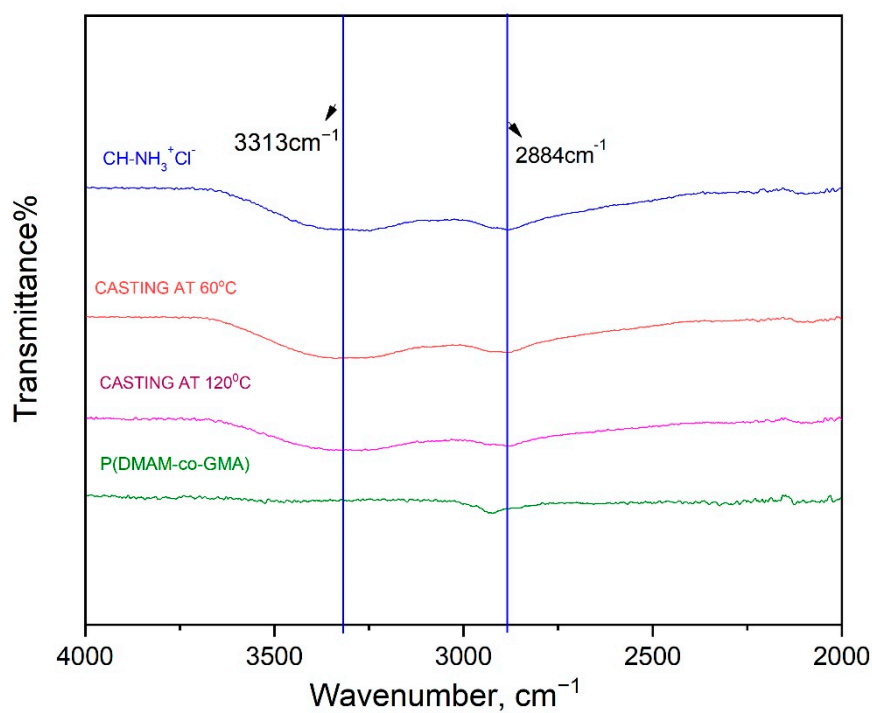


Figure S7. ATR-FTIR spectra in the 2000-4000 cm^{-1} region of P(DMAM-co-GMA), $\text{ChNH}_3^+\text{Cl}^-$ and the membrane $\text{Ch-NH}_3^+\text{Cl}^-$ /P(DMAM- GMA) 9:1 after thermal treatment at 60°C and 120°C.

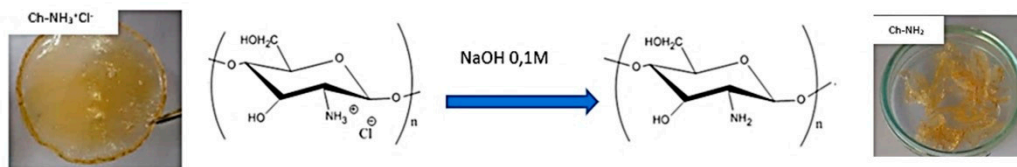


Figure S8. Schematic representation of deprotonation of Ch-NH₃⁺Cl⁻/P(DMAM-co-GMA) membranes after immersion in aqueous 0.1M NaOH solution for 24 hours at room temperature. The appearance of the Ch-NH₃⁺Cl⁻/P(DMAM-co-GMA) 8:2 membrane is shown, as example.

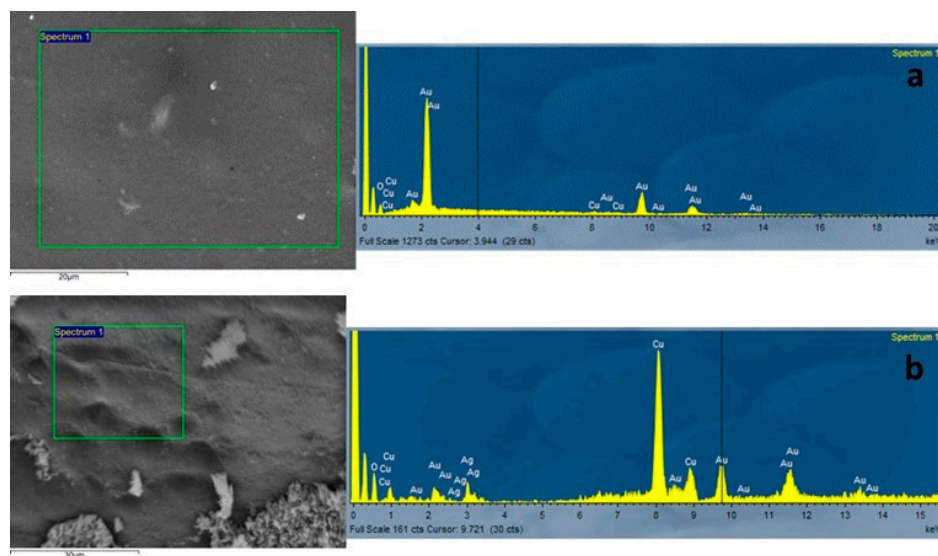


Figure S9. Surface morphology and EDS characterization of the Ch-NH₂/P(DMAM-co-GMA) 7:3 membrane (a) after preparation and thermal crosslinking at 120 °C (scale bar: 20 μm), and (b) after adsorption of Cu²⁺ ions (scale bar: 30 μm).

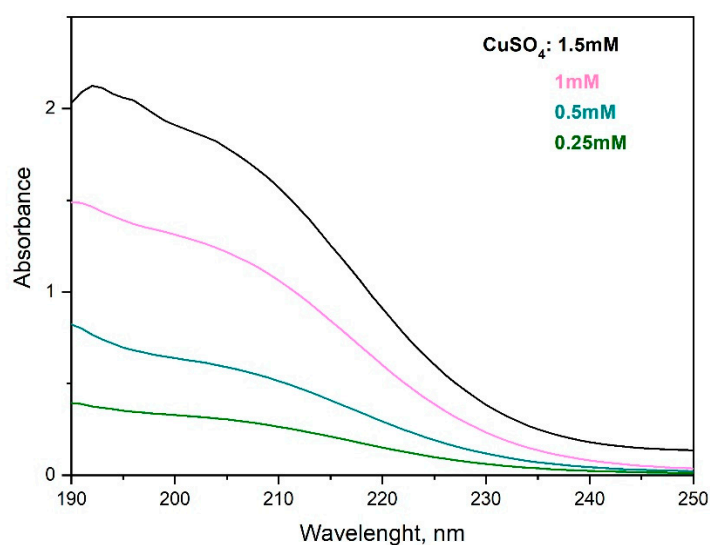


Figure S10. UV-Vis spectra of aqueous CuSO₄ solutions in the concentration range 0.25-1.5 mM.

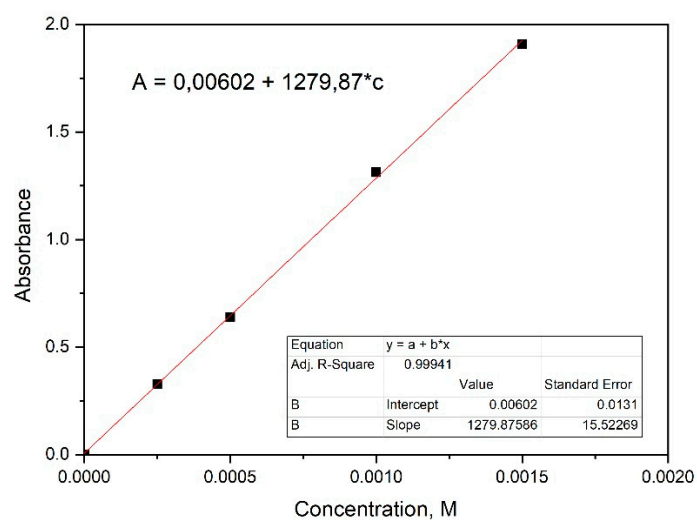


Figure S11. Calibration curve of the absorbance of aqueous CuSO_4 solutions at 200nm.

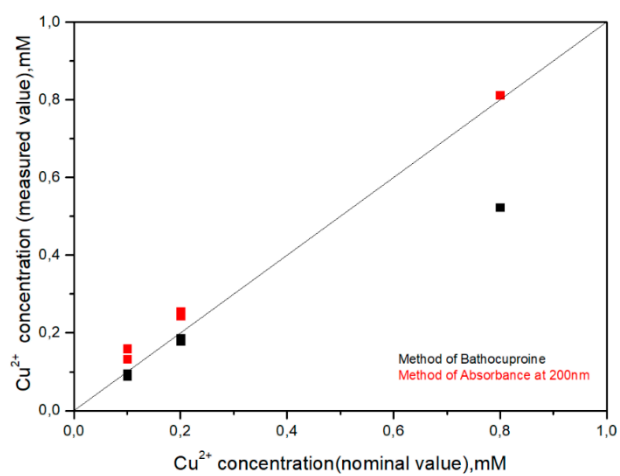


Figure S12. Comparative results of measured and nominal concentrations of aqueous CuSO_4 solutions, using the Bathocuproine method and the method of absorbance at 200nm.

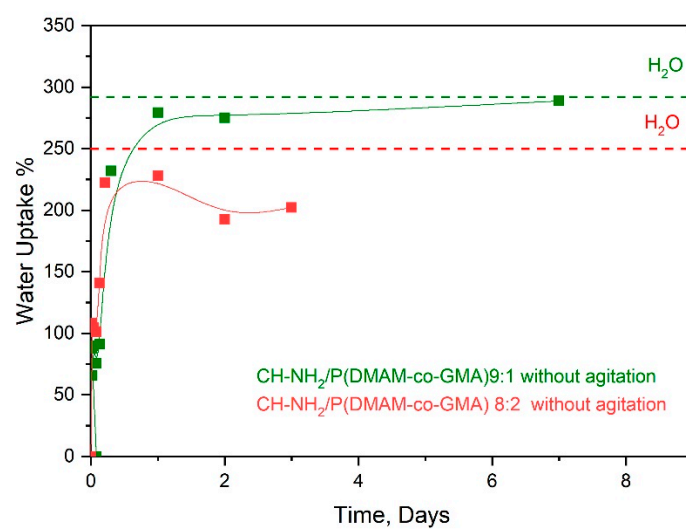


Figure S13. Water Uptake% of Ch-NH₂/P(DMAM-co-GMA) 8:2 and 9:1 membranes as a function of immersion time in aqueous 1.5 mM CuSO₄.