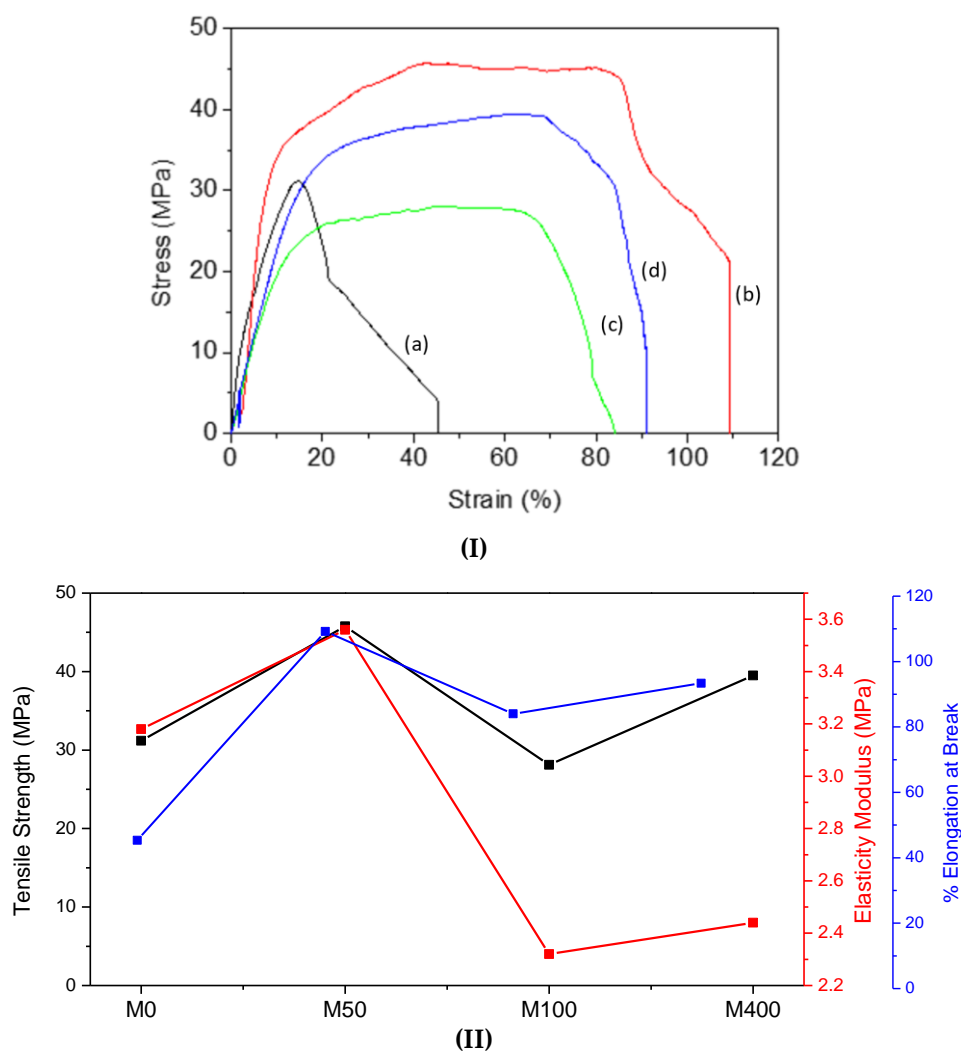
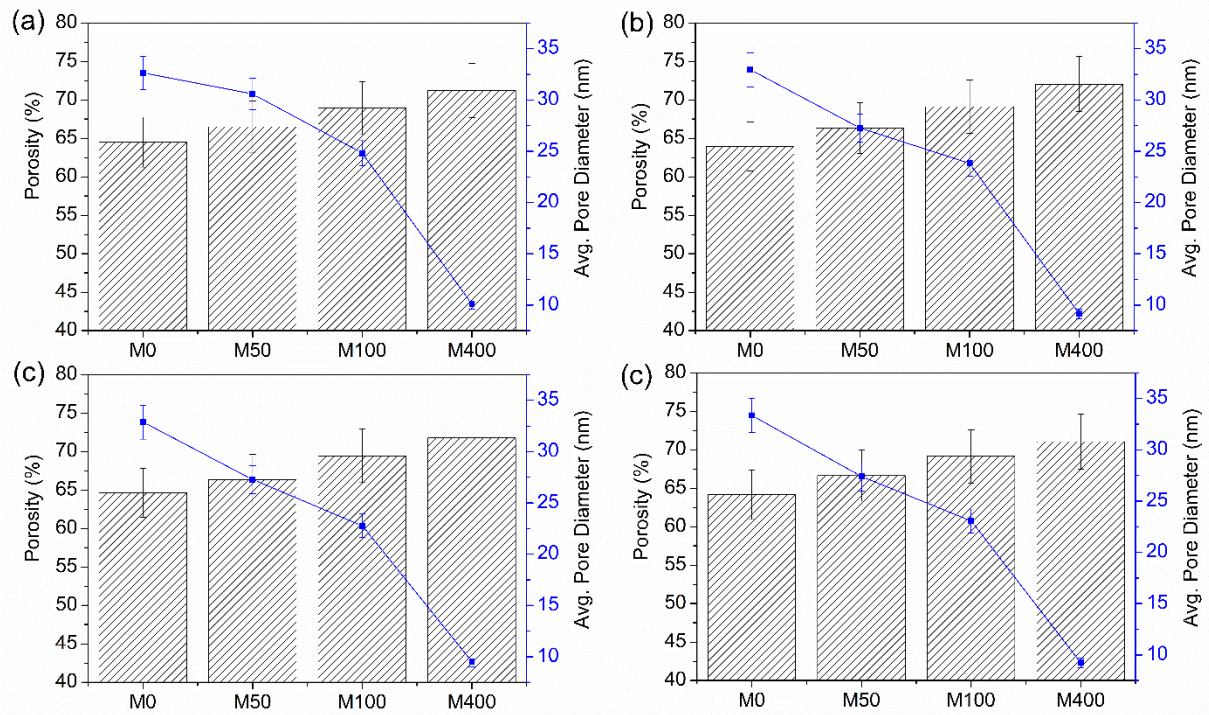


Supplementary Materials

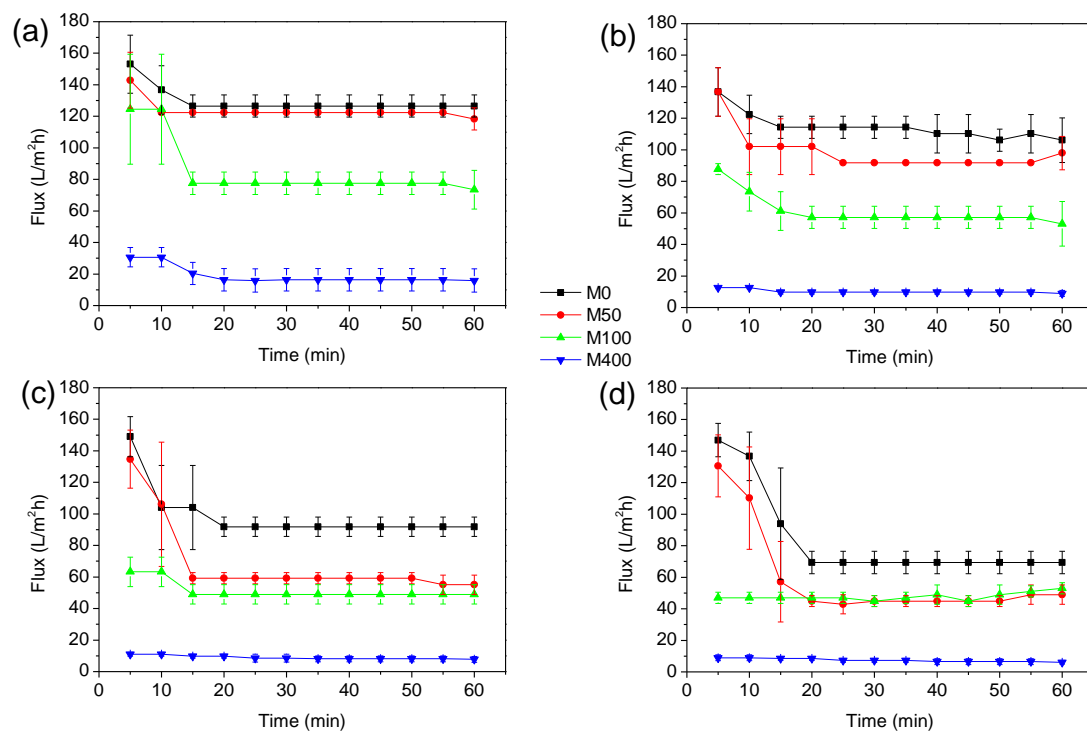
# Effects of Benzalkonium Chloride Contents on Structures, Properties, and Ultrafiltration Performances of Chitosan-Based Nanocomposite Membranes



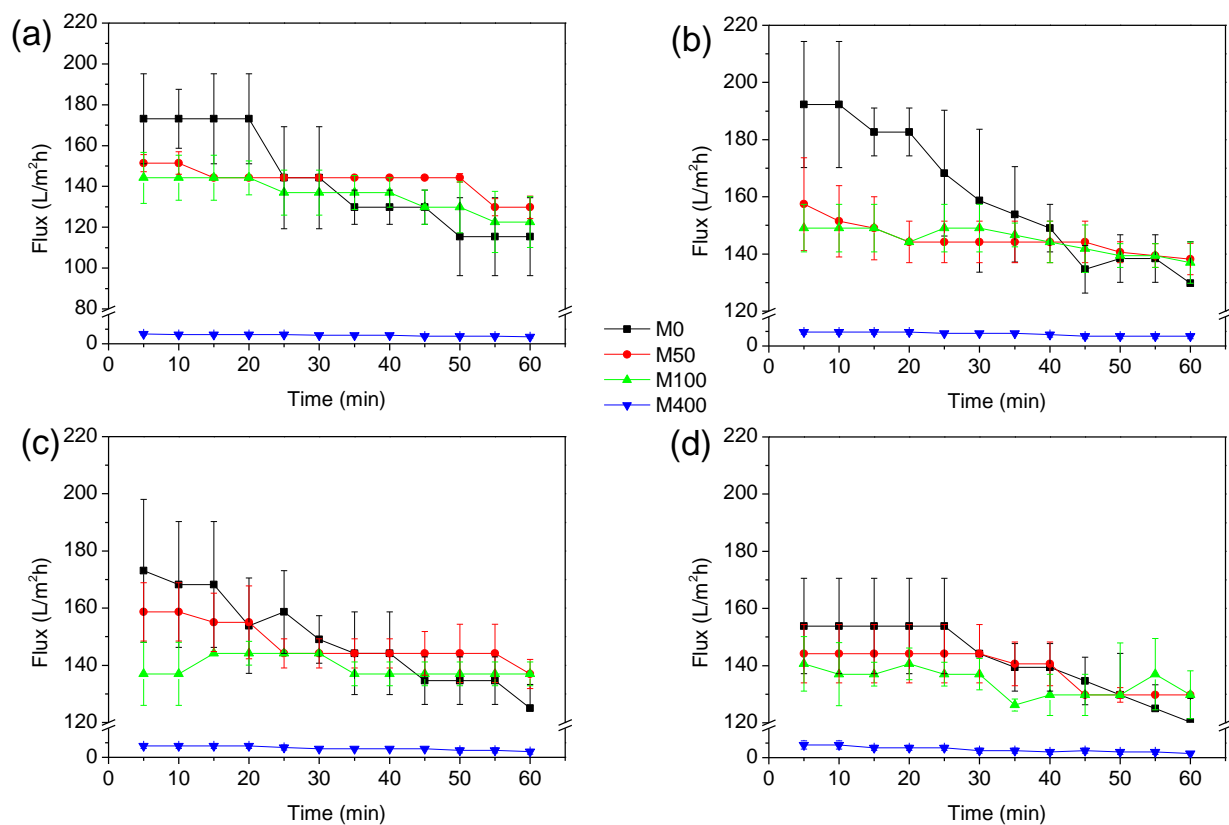
**Figure S1.** (I) Stress vs. strain curves of (a) M0, (b) M50, (c) M100 and (d) M400; (II) Tensile strength, Young's modulus, and elongation at break of nanocomposite membranes.



**Figure S2.** Porosity and average pore size of nanocomposite membranes with different BKC contents and thicknesses: (a) 0.05 mm, (b) 0.06 mm, (c) 0.07 mm and (d) 0.08 mm.



**Figure S3.** Flux-time relationship for various nanocomposite membranes at various thicknesses for the dead-end filtration model: (a) 0.05 mm, (b) 0.06 mm, (c) 0.07 mm and (d) 0.08 mm.



**Figure S4.** Flux-time relationship for various nanocomposite membranes at various thicknesses for the crossflow filtration model: (a) 0.05 mm, (b) 0.06 mm, (c) 0.07 mm and (d) 0.08 mm.

**Table S1.** Comparisons of the performance of similar membranes.

No.	Precursor	Pressure (Bar)	Pure Water Flux L/m <sup>2</sup> h	Rejection	Source
1	CS/PEG/BKC/CNT	4	129.59	40 (BSA)	This work
2	CS/PVA/MMT	1	25.72	88.34 (Chromium)	Sangeetha, K., Sudha, P. N., & Sukumaran, A. (2019). Novel chitosan based thin sheet nanofiltration membrane for rejection of heavy metal chromium. <i>International journal of biological macromolecules</i> , 132, 939-953.
3	CS/GO	4	10	95 (BSA)	Liu, T., Graham, N., & Yu, W. (2021). Evaluation of a Novel Composite Chitosan–Graphene Oxide Membrane for NOM Removal during Water Treatment. <i>Journal of Environmental Chemical Engineering</i> , 105716.
4	MWCNT/CS	3	5.73	65 (NaCl)	Alshahrani, A. A., Algamdi, M. S., Alsohaimi, I. H., Nghiem, L. D., Tu, K. L., Al-Rawajfeh, A. E., & in het Panhuis, M. (2020). The rejection of mono-and di-valent ions from aquatic environment by MWNT/chitosan buckypaper composite membranes: Influences of chitosan concentrations. <i>Separation and Purification Technology</i> , 234, 116088.