Table. S1. Water quality

Sample	pH	EC (mS/m)	Turbidity (NTU)	DOC (mg/L)	UV260 (m^{-1})
Raw water	7.25	5.49	2.47	0.744	1.694

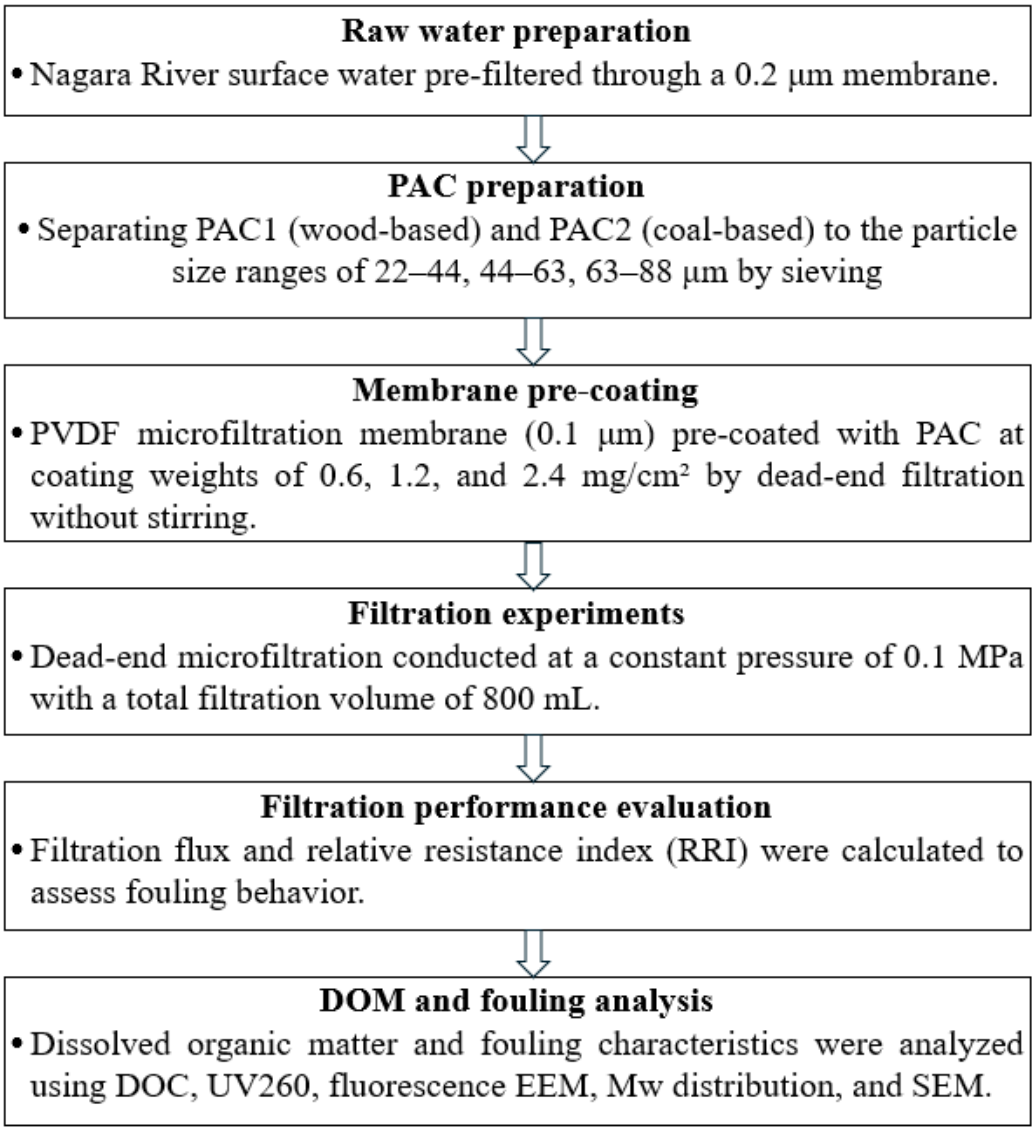


Figure. S1. Schematic flowchart illustrating the experimental design of this study, including raw water preparation, PAC fractionation, membrane pre-coating, dead-end microfiltration experiments, and subsequent analyses of filtration performance and dissolved organic matter characteristics.

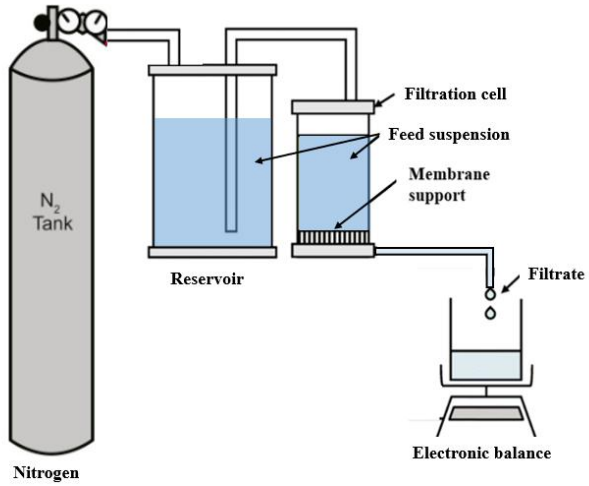


Figure. S2. Setup for filtration process

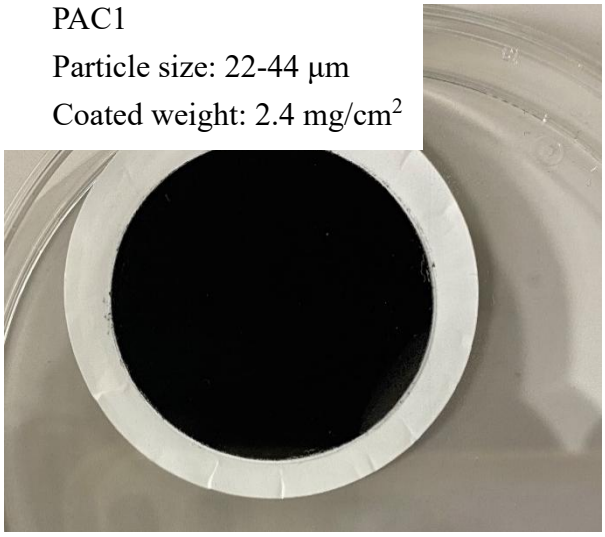


Figure. S3. Membrane precoated with PAC1

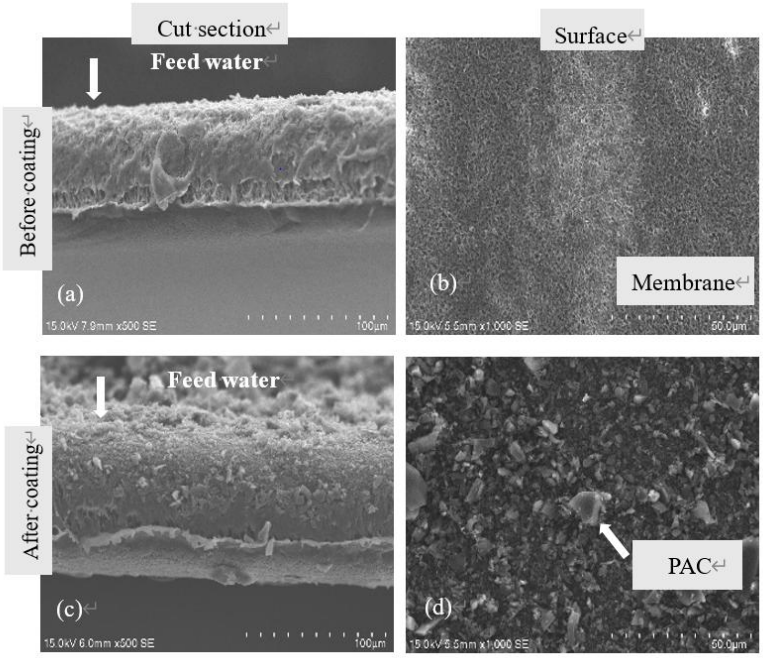


Figure. S4. SEM images of membrane with and without pre-coated PAC1 ((a) and (b) show the cross-sectional and surface morphologies of membranes without pre-coating, while (c) and (d) correspond to membranes pre-coated with PAC1(the results for PAC1 with the size range of 22–44 μm).

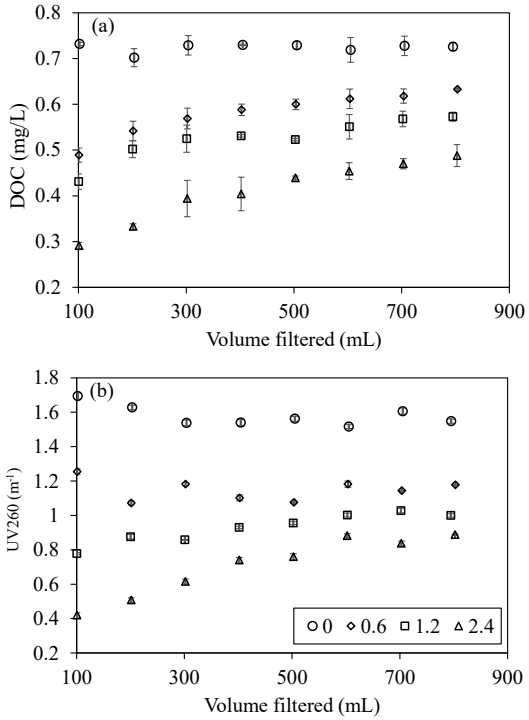


Figure. S5. Changes in DOM concentration reflected by (a) DOC and (b) UV260 during filtration using membrane with and without pre-coated PAC at different coating weights (0.6, 1.2 and 2.4 mg/cm^2) (the results for PAC2 with the size range of 22–44 μm) (Symbols represent mean values, and error bars indicate ± SD (n = 2))