membranes

Supplementary Materials

Modification of Polyacrylonitrile Ultrafiltration Membranes to Enhance the Adsorption of Cations and Anions

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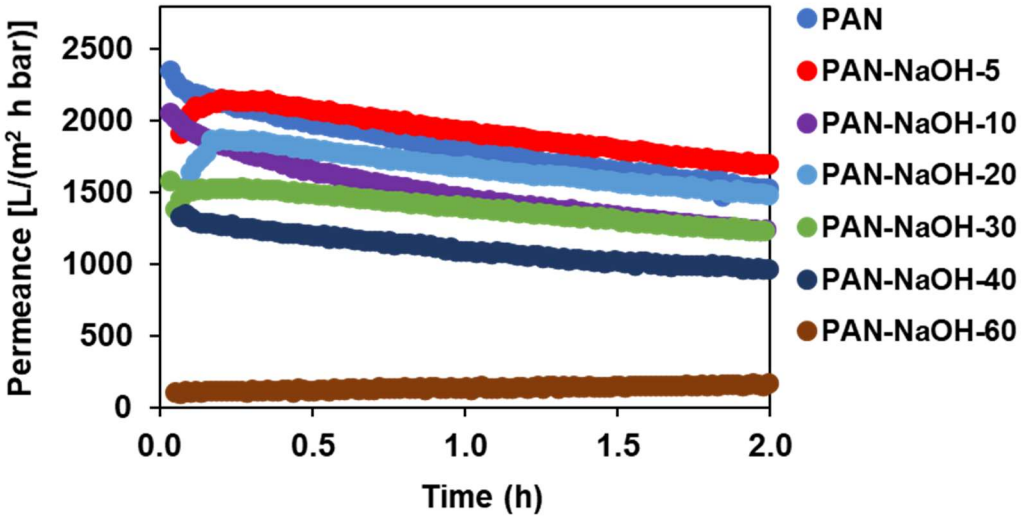

Figure S1. Pure water permeance of pristine PAN membranes and PAN-NaOH membranes modified for 5, 10, 20, 30, 40 and 60 min measured for 2 h.

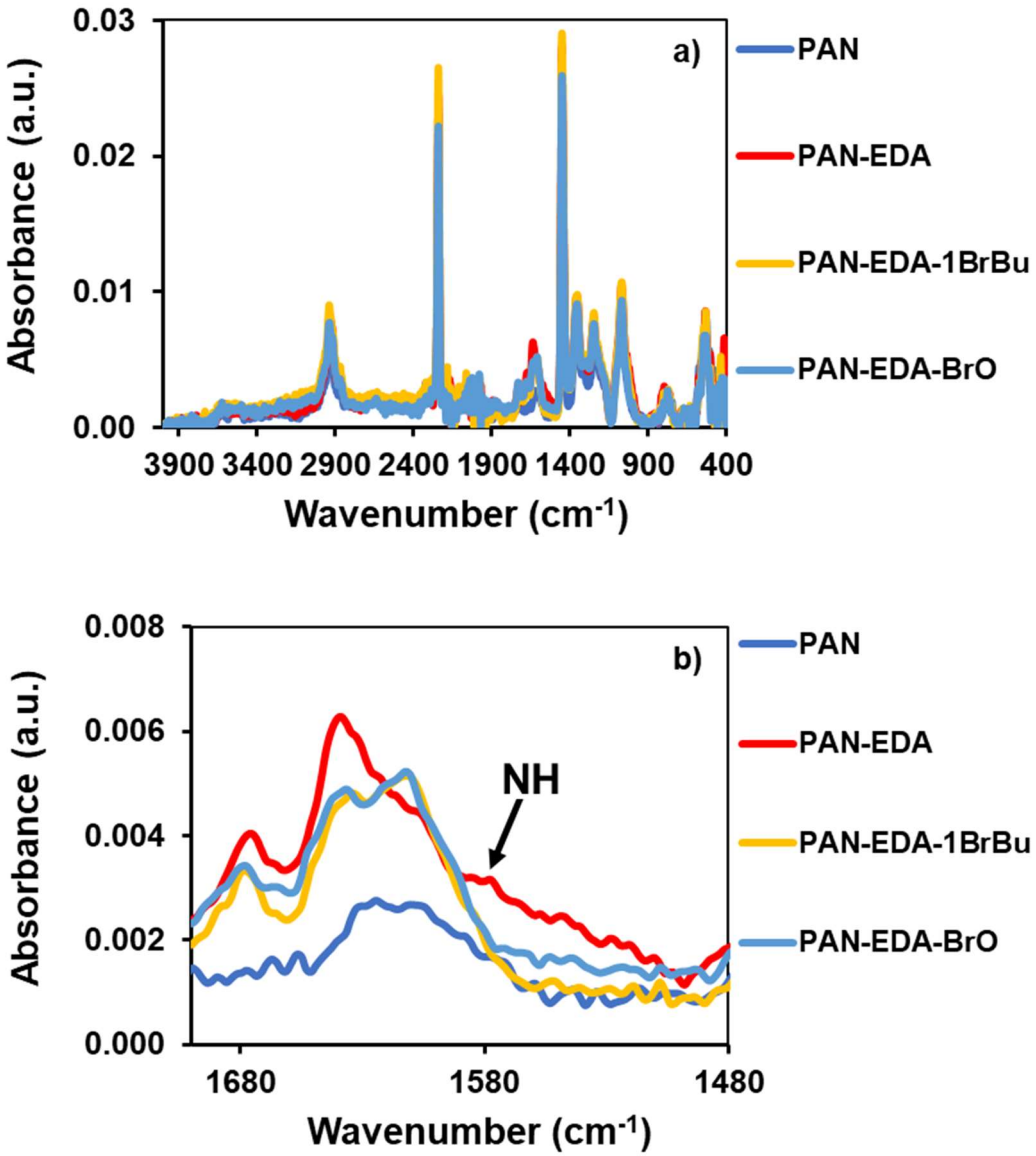

Figure S2. ATR-FTIR spectra of pristine PAN, PAN-EDA and PAN-EDA-1BrBu and PAN-EDA-BrO membranes a) complete spectra and b) spectral range from 1700-1480 cm^{-1}.

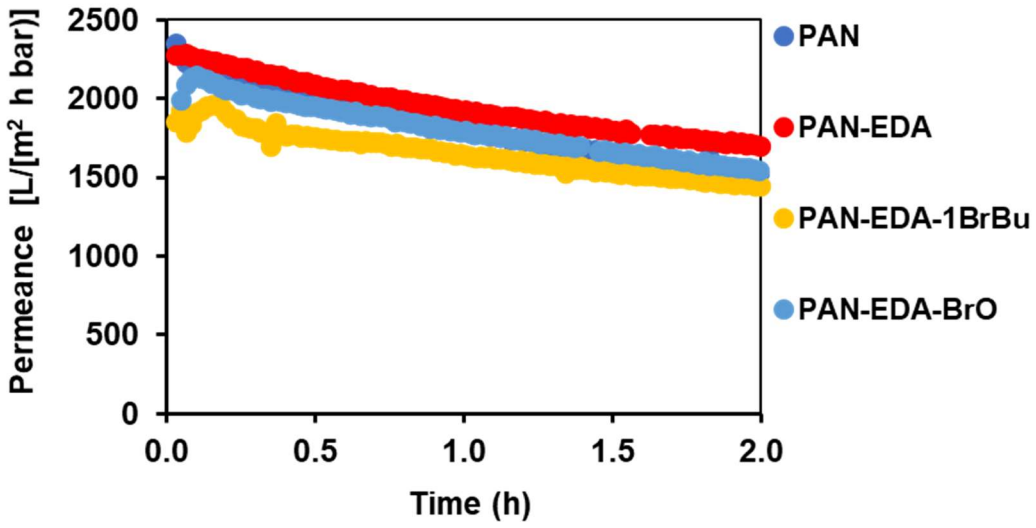

Figure S3. Permeance of pristine PAN, PAN-EDA, PAN-EDA-1BrBu and PAN-EDA-BrO membranes.

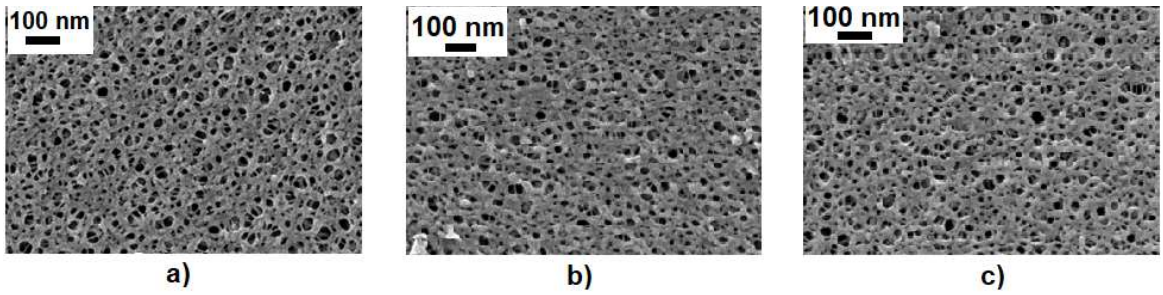

Figure S4. SEM analysis of a) pristine PAN, b) PAN-EDA-1BrBu, c) PAN-EDA-BrO membranes.

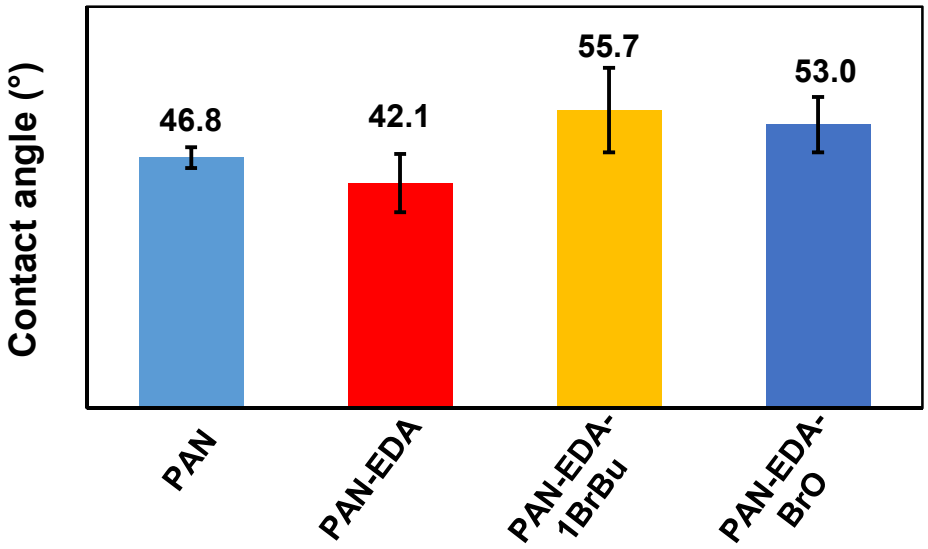

Figure S5. Water contact angle of PAN-EDA, PAN-EDA-1BrBu and PAN-EDA-BrO membranes.

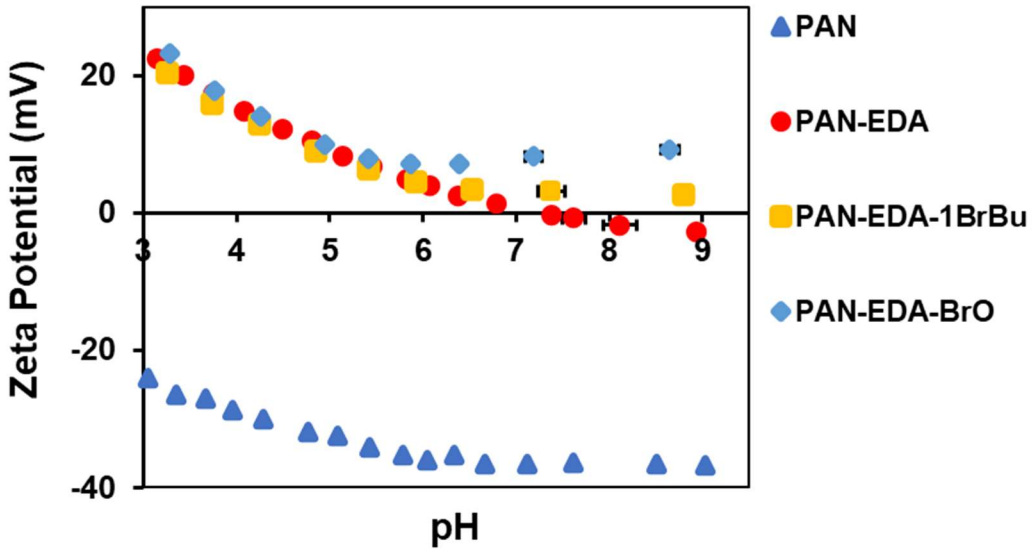

Figure S6. Zeta potential (pH 9 to 3) of PAN-EDA and PAN-EDA-1BrBu and PAN-EDA-BrO membranes.

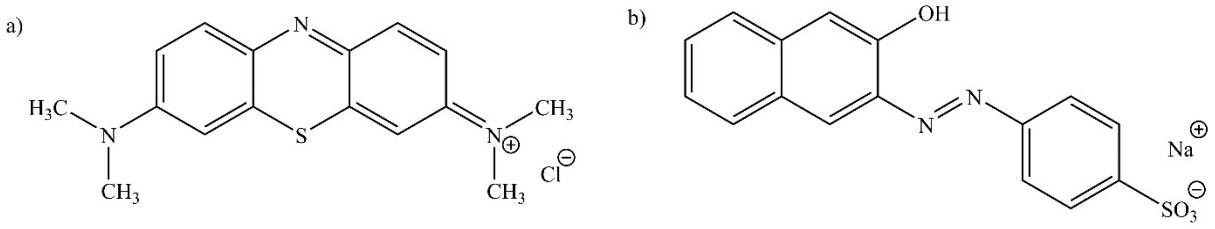

Figure S7. Chemical structure of a) methylene blue and b) orange II.

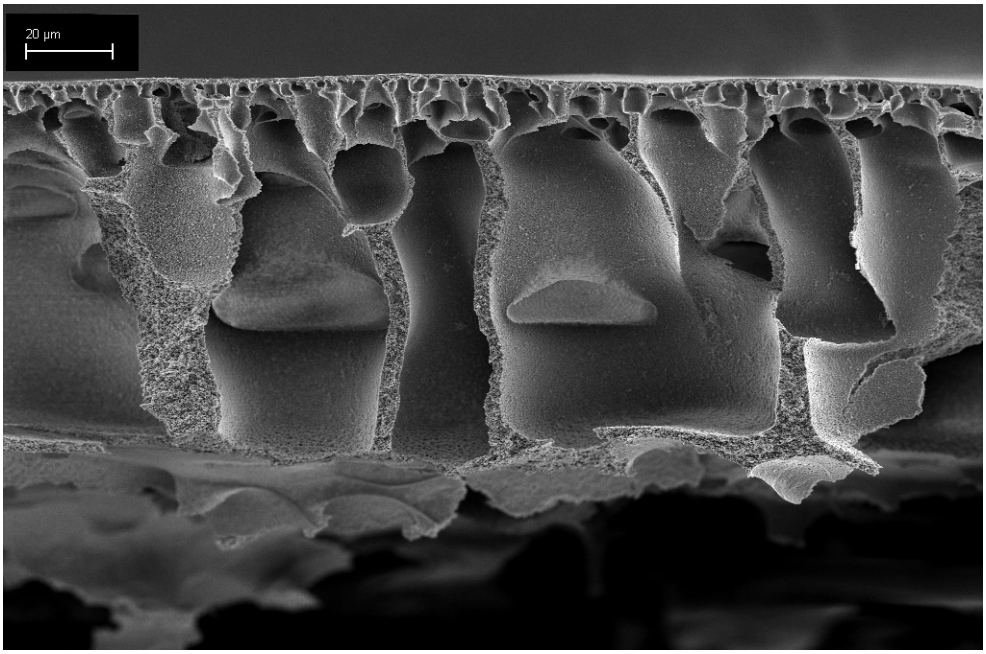

Figure S8. SEM images of the cross section of the pristine PAN membrane.