Electronic Supplementary Material (ESI) for Green Chemistry.

Supporting Information

Regenerated cellulose strongly adhered by supramolecular adhesive onto PVDF membrane for highly efficient oil/water separation

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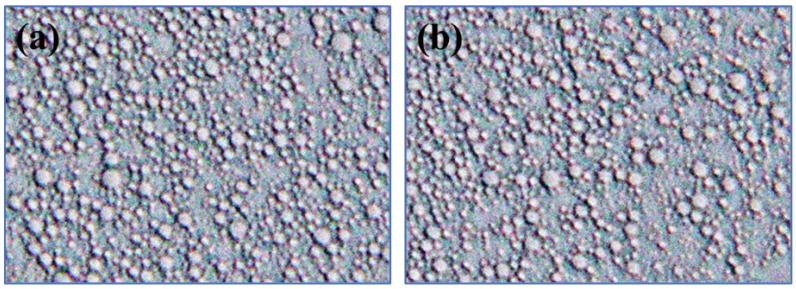

Fig.S1 (a) Biological microscope image of sunflower oil-in-water emulsion. (b) Biological microscope image of sunflower oil-in-water emulsion after 72 hours.

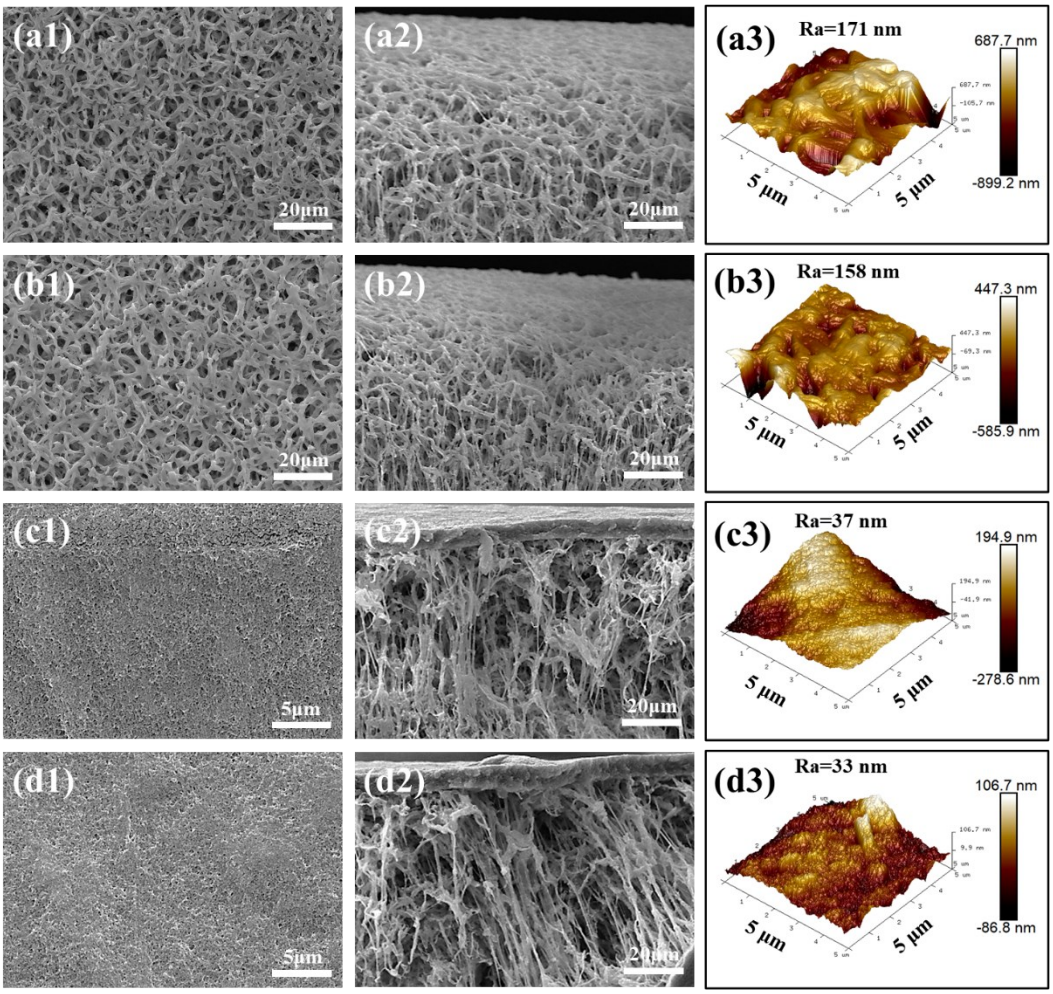

Fig. S2 (a1-d1) SEM images of the outside surface morphologies of TA-PVDF, PVA-PVDF, Cellulose-TA-PVDF, and Cellulose-PVA-PVDF. (a2-d2) SEM images of the fracture surface morphologies of TA-PVDF, PVA-PVDF, Cellulose-TA-PVDF, and Cellulose-PVA-PVDF. (a3-d3) AFM images of TA-PVDF, PVA-PVDF, Cellulose-TA-PVDF, and Cellulose-PVA-PVDF.

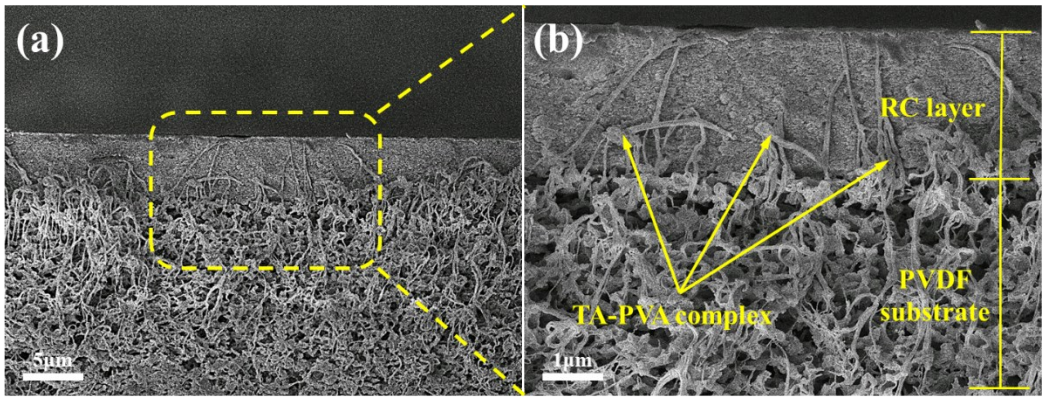

Fig. S3 TA-PVA and the RC layer in Cellulose-TA-PVA-PVDF membrane.

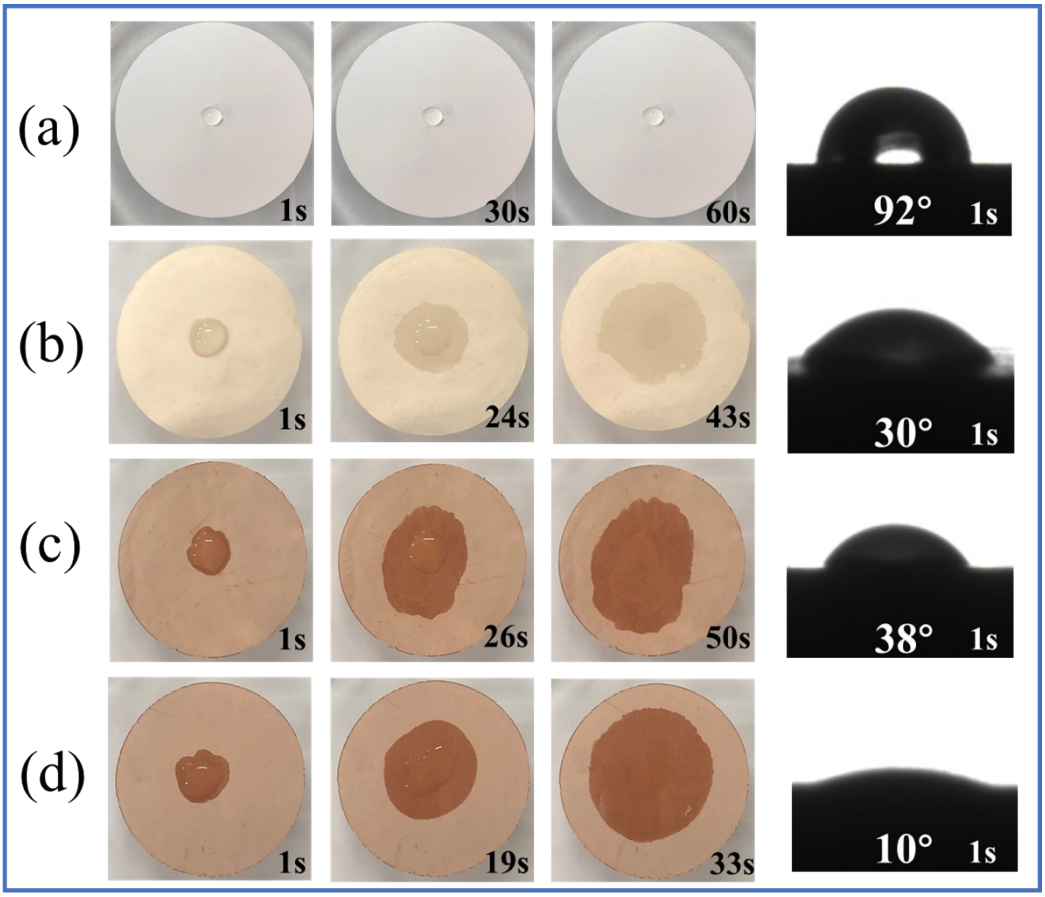

Fig.S4 (a) Water droplet on PVDF after 1 s, 30 s, and 60 s, and WCA picture of PVDF. (b) Water droplet on TA-PVDF after 1 s, 24 s, and 43 s, and WCA picture of TA-PVDF. (c) Water droplet on Cellulose-PVDF after 1 s, 26 s, and 50 s, and WCA picture of Cellulose-PVDF. (d) Water droplet on Cellulose-TA-PVA-PVDF after 1 s, 19 s, and 33 s, and WCA picture of Cellulose-TA-PVA-PVDF.

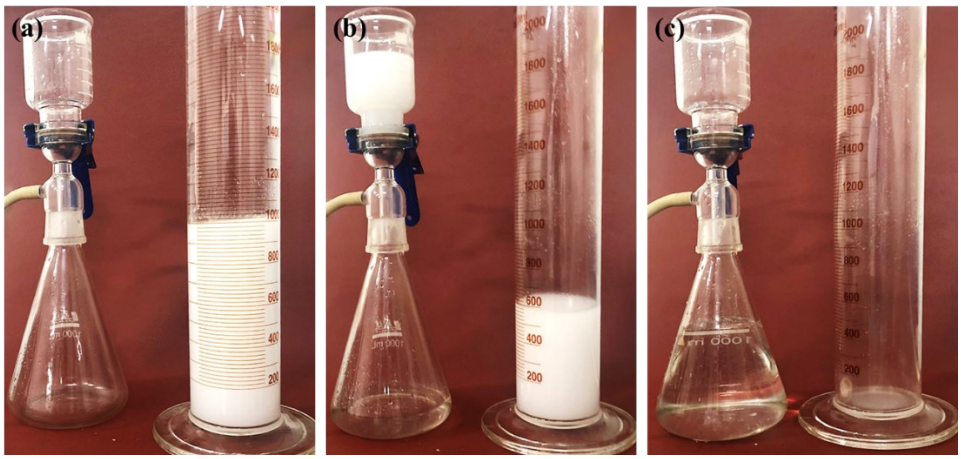

Fig. S5 Pictures of 1 L emulsified oil was separated by Cellulose-TA-PVA-PVDF membrane.

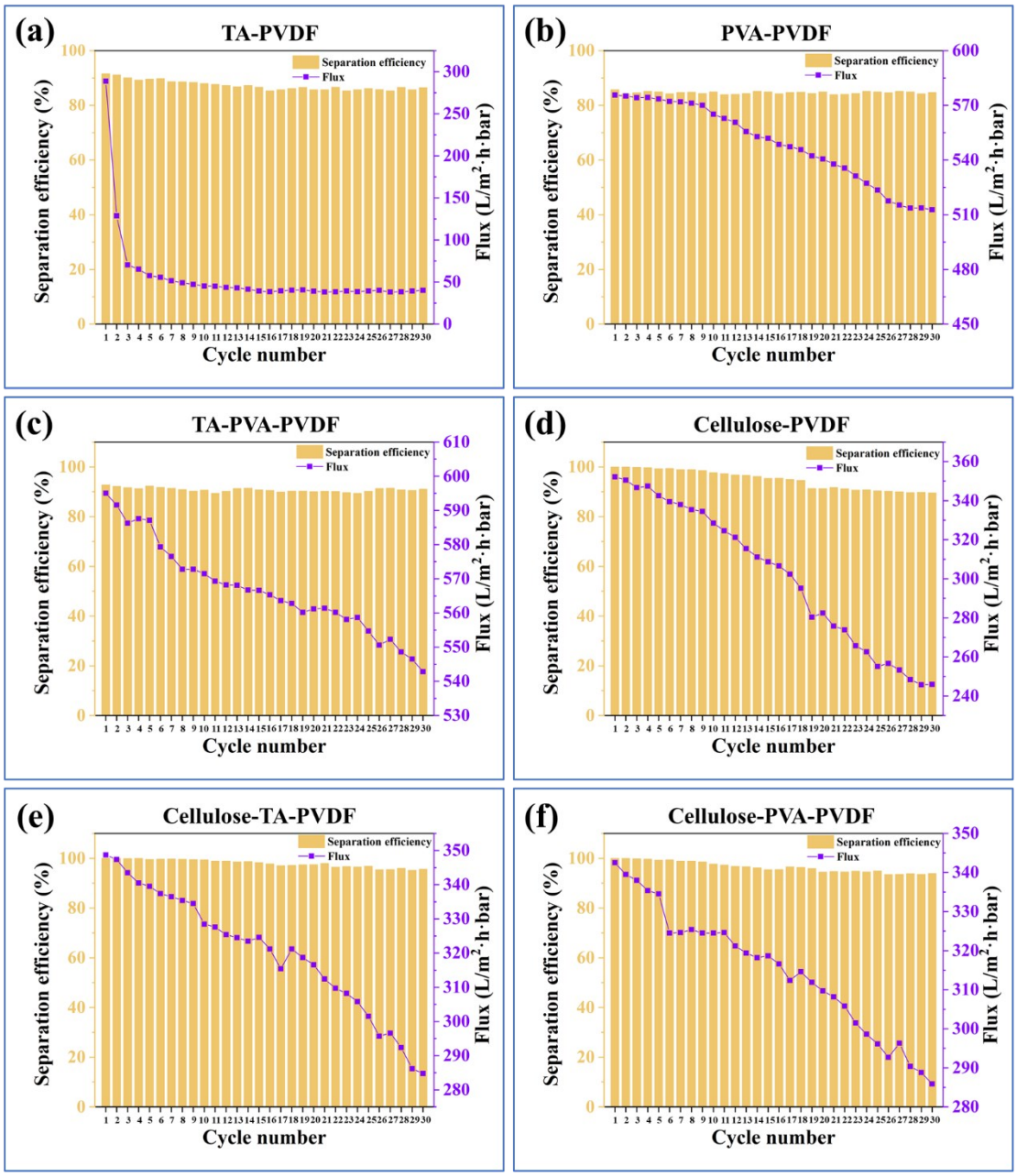

Fig. S6 Separation efficiency and flux of (a) TA-PVDF, (b) PVA-PVDF, (c) TA-PVA-PVDF, (d) Cellulose-PVDF, (e) Cellulose-TA-PVDF, (f) Cellulose-PVA-PVDF membrane with 30 cycle times.

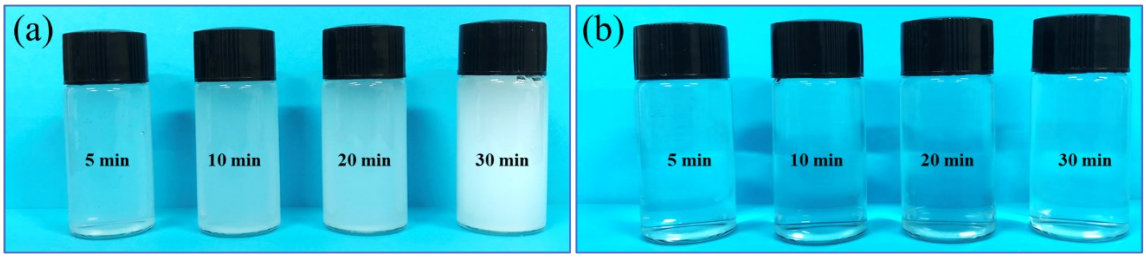

Fig. S7 Feed filtrates of (a) Cellulose-PVDF and (b) Cellulose-TA-PVA-PVDF membrane with different ultrasonic times.

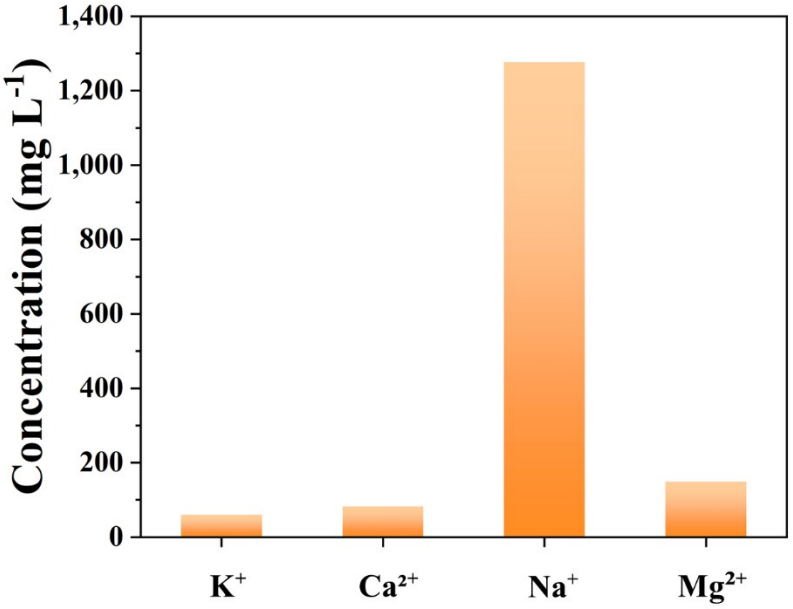

Fig. S8 The concentration of cations in simulated seawater.

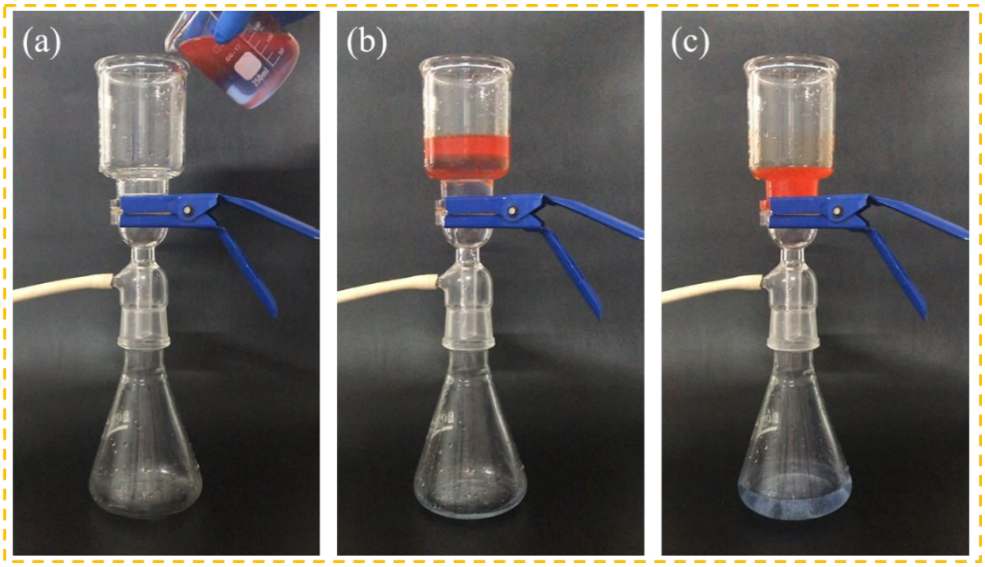

Fig. S9 Pictures of oil/water mixtures separation by Cellulose-TA-PVA-PVDF membrane.