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## A new design of activated carbon membrane air-cathode for wastewater treatment and energy recovery

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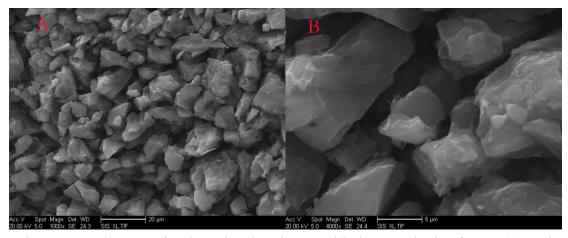


Fig. S1 SEM images of activated carbon layers with the magnitude of 1000 (A) and 4000 (B).

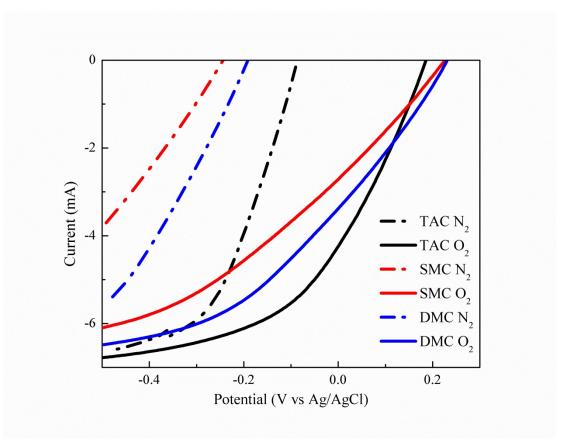


Fig. S2 LSV curves of DMC, SMC and TAC cathode in  $N_2$ -saturated (dash and dot line) and  $O_2$ -saturated (solid line) 50 mM PBS.

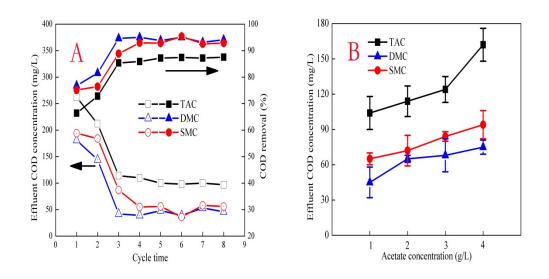


Fig. S3 Effluent COD concentration and COD removal efficiency along with the cycle time (A) and with different organic loading conditions (B).

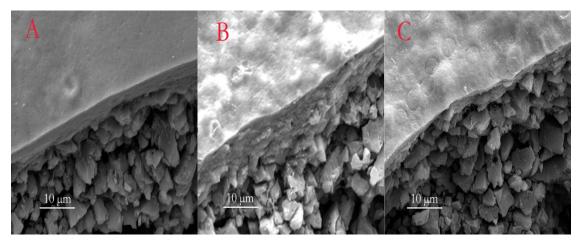


Fig. S4 SEM images of biofim fouling activated carbon layers of SMC (A), DMC (B) and TAC (C).