

# Supplementary Materials: Novel Carbon Quantum Dots/Silver Blended Polysulfone Membrane with Improved Properties and Enhanced Performance in Tartrazine Dye Removal

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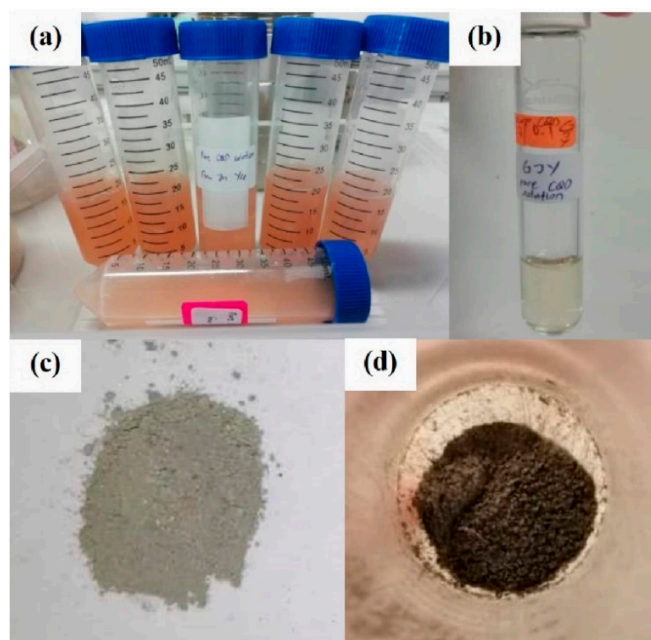
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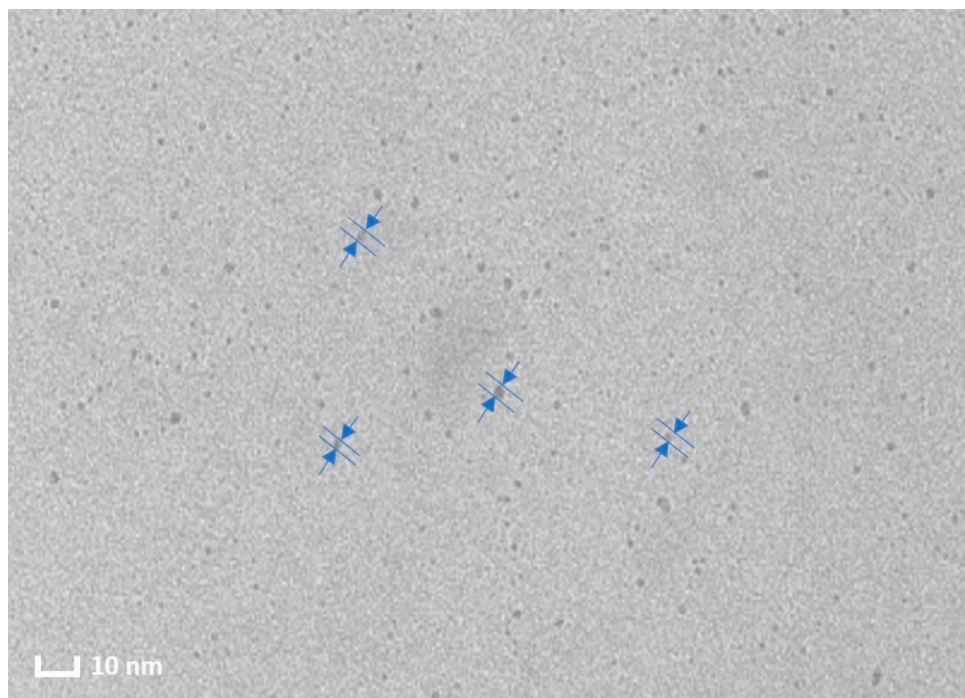
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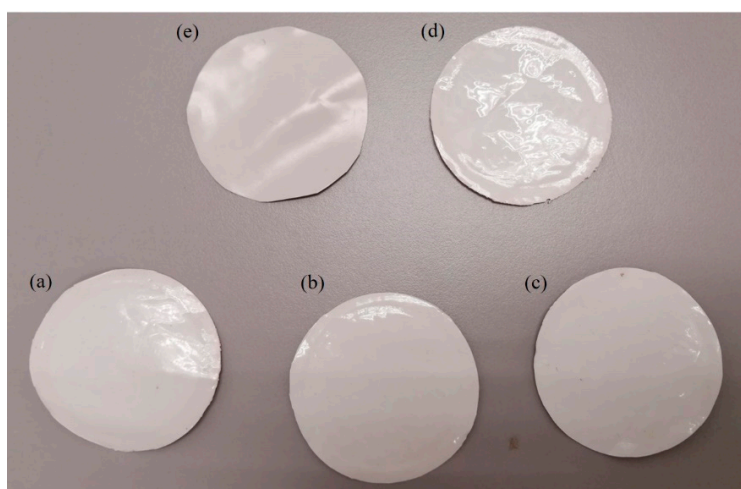
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**Figure S1.** (a) dark brown suspension after hydrothermal treatment (b) clean CQD solution after extraction of organic moieties, (c) Ag powder and (d) Ag/CQD powder



**Figure S2.** TEM image of CQD.



**Figure S3.** Fabricated membranes with (a) 0 wt% (PSF); (b) 0.3 wt%; (c) 0.5 wt%; (d) 0.7 wt%; and (e) 1.0 wt% of Ag/CQD loading.

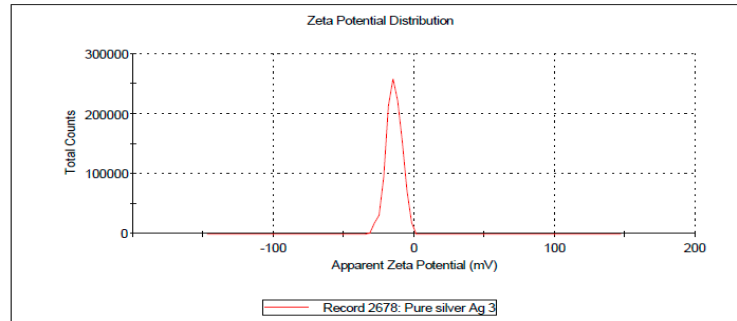


# membranes

(a)

## Results

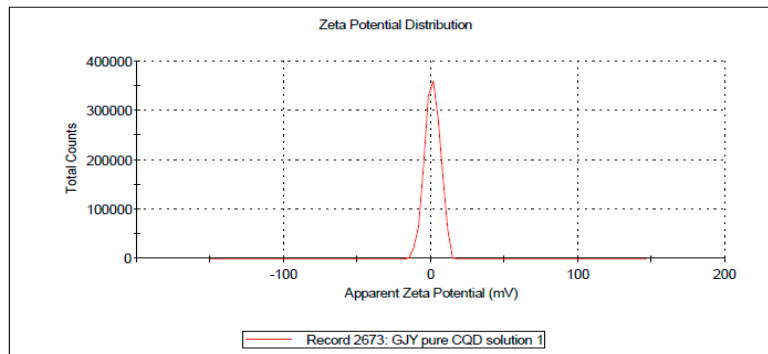
	Mean (mV)	Area (%)	St Dev (mV)
<b>Zeta Potential (mV):</b> -14.1	<b>Peak 1:</b> -14.1	100.0	5.46
<b>Zeta Deviation (mV):</b> 5.46	<b>Peak 2:</b> 0.00	0.0	0.00
<b>Conductivity (mS/cm):</b> 0.0323	<b>Peak 3:</b> 0.00	0.0	0.00
<b>Result quality:</b> Good			



(b)

## Results

	Mean (mV)	Area (%)	St Dev (mV)
<b>Zeta Potential (mV):</b> 1.25	<b>Peak 1:</b> 1.25	100.0	5.13
<b>Zeta Deviation (mV):</b> 5.13	<b>Peak 2:</b> 0.00	0.0	0.00
<b>Conductivity (mS/cm):</b> 3.05	<b>Peak 3:</b> 0.00	0.0	0.00
<b>Result quality:</b> Good			



(c)

## Results

	Mean (mV)	Area (%)	St Dev (mV)
<b>Zeta Potential (mV):</b> -33.6	<b>Peak 1:</b> -33.6	100.0	5.71
<b>Zeta Deviation (mV):</b> 5.71	<b>Peak 2:</b> 0.00	0.0	0.00
<b>Conductivity (mS/cm):</b> 0.203	<b>Peak 3:</b> 0.00	0.0	0.00
<b>Result quality:</b> Good			

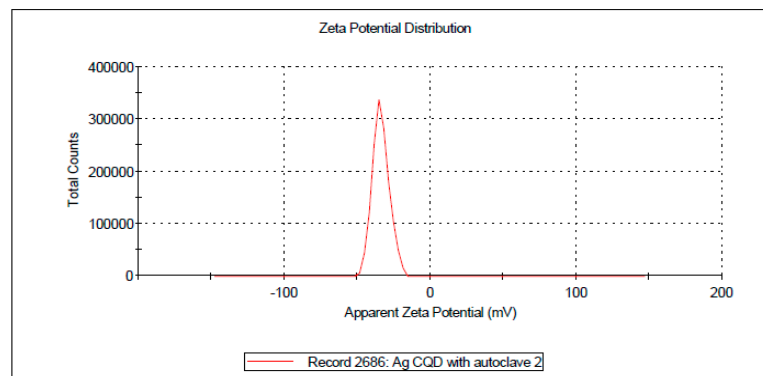
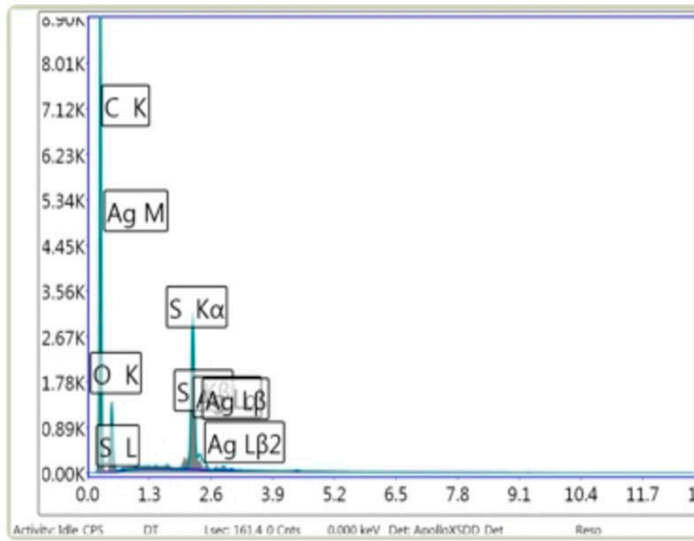


Figure S4. Zeta potential of (a) Ag, (b) CQD and (c) Ag/CQD



## membranes



Element Weight % Atomic %

Element	Weight %	Atomic %
C K	76.3	83.2
O K	17.62	14.42
S K	5.73	2.34
AgL	0.35	0.04

Figure S5. The Elemental Composition of the Membrane with 0.5 wt% of Ag/CQD.