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## Supplementary material

### **Towards Furfural and Biomass Char Production from *Camellia oleifera* Husks using Dilute Hydrochloric Acid Pretreatment: A Comprehensive Investigation on Adsorption Performance**

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## Figures and Tables captions

24 Fig. S1. Dilute HA recovery and recycling experiment.

25 Fig. S2. Desorption of FF with different solvents of methanol, ethanol,  
26 dichloromethane, 2-Me-THF, and acetone.

27 Fig. S3. the adsorption capacity of the regenerated S-8 macroporous resin after 5  
28 batch recyclings.

29 Table S1. Properties of S-8 macroporous resin.

30 Table S2. Adsorption kinetic parameters of FF adsorbed on S-8 macroporous resin.

31 Table S3. Thermodynamic parameters of adsorption of FF on S-8 macroporous resin.

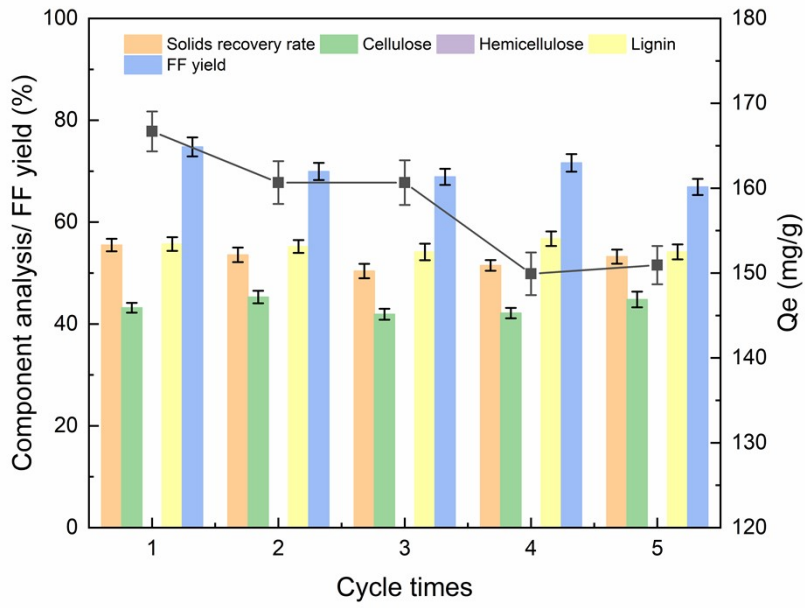
32 Table S4. Adsorption kinetic parameters for MB dye adsorption on BC.

33 Table S5. Thermodynamic parameters for the adsorption of MB dye on BC.

34 Table S6. Characteristics of biomass char (BC) used in our work and coconut  
35 activated carbon (CAC) reported in the literature .

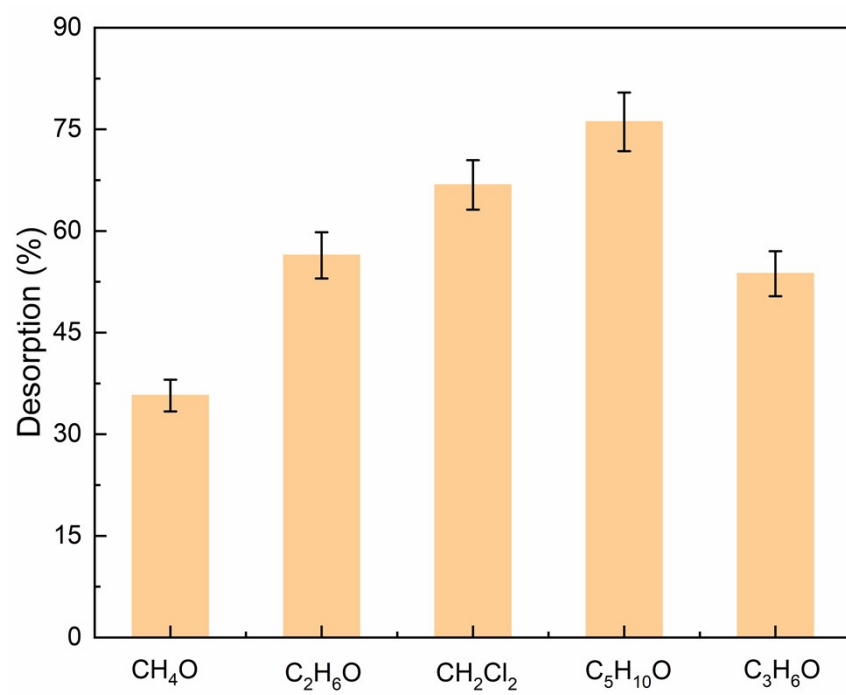
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37 Fig. S1



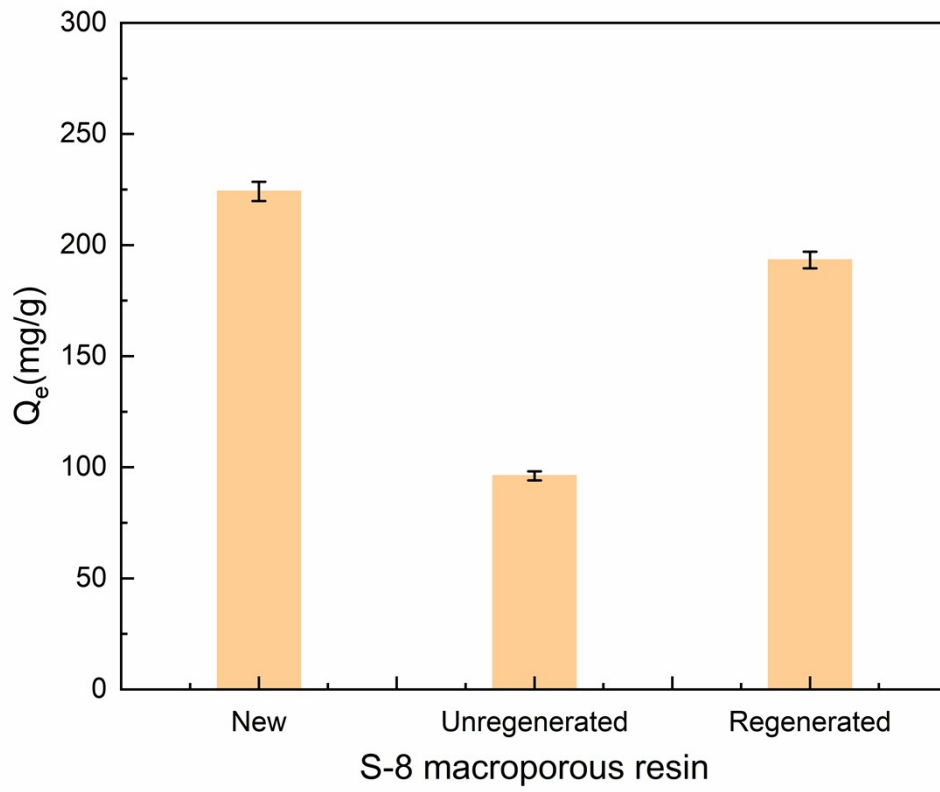
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39 Fig. S2



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41 Fig. S3



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43 **Table S1**

Properties	Range
Particle size range	0.3-1.25 mm
Water content	66-72 %
Specific surface area	100-120 m <sup>2</sup> /g
Wet vacuum density	1.0-1.06 g/ml
Wet apparent density	0.6-0.7 g/ml

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45 **Table S2**

Pseudo-first-order			Pseudo-second-order		
Q <sub>1</sub> (mg/g)	K <sub>1</sub> (1/min)	R <sup>2</sup>	Q <sub>2</sub> (mg/g)	K <sub>2</sub> (1/min)	R <sup>2</sup>
30.57	0.125	0.999	209.21	0.0087	0.999

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47 **Table S3**

R <sup>2</sup>	$\Delta H$	$\Delta S$	$\Delta G/(\text{kJ}\cdot\text{mol}^{-1})$				
	$/(\text{kJ}\cdot\text{mol}^{-1})$	$/(\text{J}\cdot\text{mol}^{-1})$	293K	303K	313K	323K	333K
0.991	-7.649	0.632	-7.820	-7.860	-7.807	-7.841	-7.890



49 **Table S4**

Pseudo-first-order			Pseudo-second-order		
Q <sub>1</sub> (mg/g)	K <sub>1</sub>	R <sup>2</sup>	Q <sub>2</sub> (mg/g)	K <sub>2</sub>	R <sup>2</sup>
82.86	0.069	0.998	95.68	0.000896	0.989

51 **Table S5**

R <sup>2</sup>	$\Delta H$ / (kJ·mol <sup>-1</sup> )	$\Delta S$ / (J·mol <sup>-1</sup> )	$\Delta G$ /(kJ·mol <sup>-1</sup> )				
			293K	303K	313K	323K	333K
0.987	37.25	168.11	-11.91	-13.93	-15.53	-16.97	-18.63

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53 **Table S6**

Characteristic	BC in our work	CAC in the literature
Surface area (m <sup>2</sup> /g)	1134.619	645
Average pore Diameter (nm)	1.811	1.60
Total pore volume (cm <sup>3</sup> /g)	0.514	0.26
Microporous volume (cm <sup>3</sup> /g)	0.447	0.25
Mesoporous volume (cm <sup>3</sup> /g)	0.067	0.01

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