

Supporting file

Sustainable Zeolite / Activated Carbon Nanocomposite for Dual-Dye Adsorption, Kinetic and Thermodynamic Studies, and Urea Electro-Oxidation Applications

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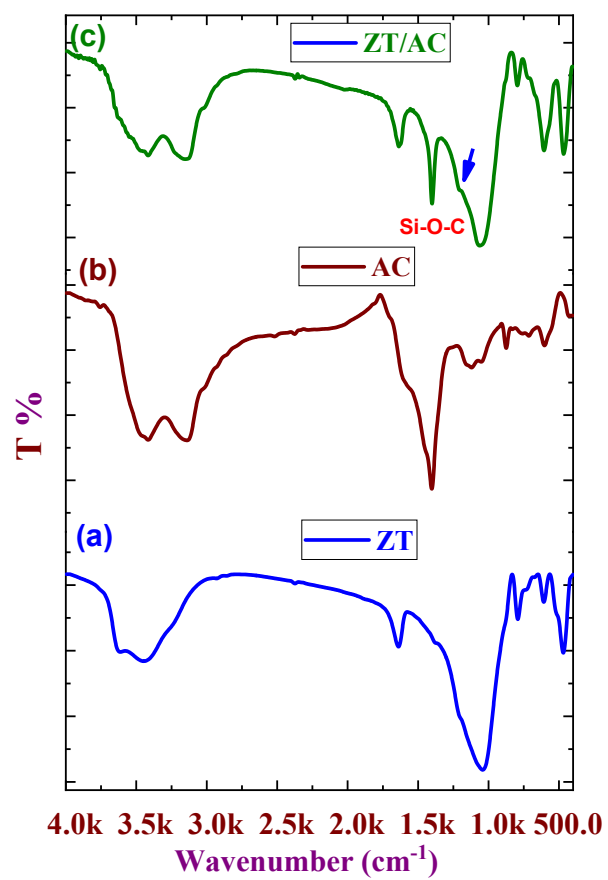


Figure S1. FTIR spectra of the prepared samples.

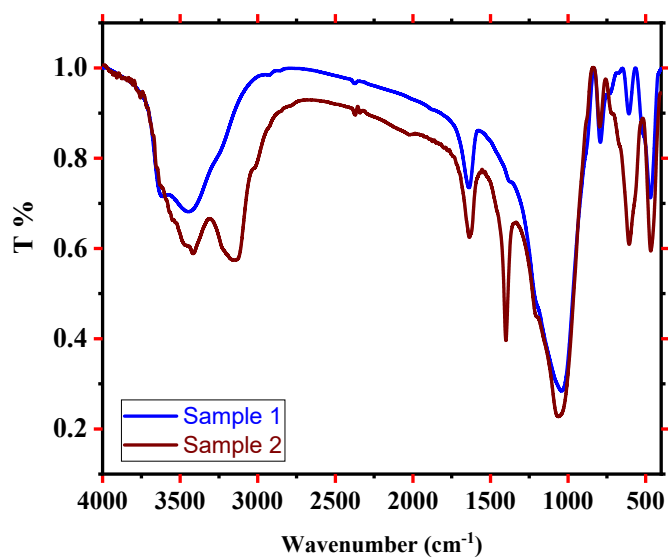


Figure S2. FTIR spectra of the prepared composite using milling sample (used one in the application) sample 1 and prepared sample 2 using physical mixing.

Table S1. The adsorption capacity of different dyes adsorption at different temperature and the calculated thermodynamic parameters using Prepared composite.

Temp (°C) CR	Tem p (K)	q _e (mg/g)	K _d (L/g)	K _{d, mol} (L/mol)	Ln (K _{d, mol})	ΔG°(kJ/mol)	ΔH°	ΔS°
25	298	399.3	39.93	27,820	10.233	-25.32	16.49 kJ/mol	140.5 J·mol ⁻¹ ·K ⁻¹
35	308	508.6	50.86	35,440	10.476	-26.62		
45	318	627.9	62.79	43,750	10.686	-28.22		
55	328	728.3	72.83	50,740	10.835	-29.48		

Temp (°C) CV	Tem p (K)	q _e (mg/g)	K _d (L/g)	K _{d, mol} (L/mol)	Ln (K _{d, mol})	ΔG°(kJ/mol)	ΔH°	ΔS°
25	298	504.8	50.48	20,594	9.933	-24.62	14.64kJ/mol	131.7 J·mol ⁻¹ ·K ⁻¹
35	308	626.4	62.64	25,550	10.149	-26		
45	318	718.3	71.83	29,300	10.286	-27.19		
55	328	879.2	87.92	35,870	10.49	-28.82		