

**PREPARATION, CHARACTERIZATION, AND USE OF  
TRIMETHOXY[3-(METHYLAMINO)PROPYL]SILANE FUNCTIONALIZED SBA-  
15 FOR CONGO RED ADSORPTION**

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## SUPPORTING MATERIAL

**Table S1.** Non-linear and linear equations of the kinetic models studied

Model name	Nonlinear equation	Linear equation	Plot
PFO	PFO	$dq_t/dt = k_1 \cdot (q_e - q_t)$	$\log (q_e - q_t) = \log q_e - \frac{k_1}{2.303} \cdot t$
PSO	PSO	$dq_t/dt = k_2 \cdot (q_e - q_t)^2$	$\frac{t}{q_t} = \frac{1}{k_2 \cdot q_e^2} + \frac{1}{q_e} \cdot t$
Elovich	Elovich	$dq_t/dt = \alpha \cdot \exp(-\beta \cdot q_t)$	$q_t = \frac{\ln(\alpha \cdot \beta)}{\beta} + \frac{\ln t}{\beta}$
ID	ID	---	$q_t = k_{id} \cdot t^{0.5} + I$

**Table S2.** Effect of various parameters on the efficiency of CR adsorption onto FSBA-15

Term	p-value	f-value
Temperature (K)	0.0008	31.3
Initial dye concentration (mg/L)	0.04	6.3
Adsorbent dosage (g/L)	0.02	9.6

\* The p-value < 0.05 & f-value > 5: Significant; the p-value > 0.05 & f-value < 5: Insignificant.

**Table S3.** Non-linear and linear equations of the isotherm models studied

Model name	Nonlinear equation	Linear equation	Plot
Langmuir	$q_e = Q_{\max} \cdot \frac{K_L \cdot C_e}{1 + K_L \cdot C_e}$	$\frac{1}{q_e} = \frac{1}{Q_{\max} K_L} \cdot \frac{1}{C_e} + \frac{1}{Q_{\max}}$ $R_L = 1/(1+(K_L \cdot C_e))$	$1/q_e$ vs $1/C_e$
Freundlich	$q_e = K_F \cdot (C_e)^{1/n}$	$\log q_e = \frac{1}{n} \cdot \log C_e + \log K_F$	$\log q_e$ vs $\log C_e$
Temkin	$q_e = \frac{R \cdot T}{B} \cdot \ln(K_T \cdot C_e)$	$q_e = B \cdot \ln K_T + B \cdot \ln C_e$	$q_e$ vs $\ln C_e$