Supplementary for

Combination of acid and base activation of montmorillonite clay and its impact on the basic blue-41 removal properties: regeneration and single batch design

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Text S1: Removal equations

- The removed amount (q_e, mg/g) and the removal percentage (R, %) were calculated using the following equations:

$$q_e = (C_0 - C_e) \times \frac{V}{m} \quad \text{(Equation S1)}$$

$$R = \frac{C_0 - C_e}{C_0} \times 100\% \quad \text{(Equation S2)}$$

where C_o (mg/L) and C_e (mg/L) denote the BB-41 initial and equilibrium concentrations, respectively, V (L) represents the solution volume, and m (g) is the mass of the adsorbent.

- The linear Langmuir and Freundlich models are presented in

- Linear Langmuir model equation

$$\frac{C_e}{q_e} = \frac{1}{q_{max} K_l} + \frac{C_e}{q_{max}} \quad \text{Equation S3}$$

where, C_e is the concentration of the dye solution (mg/L) at equilibrium, q_e is the amount of dye removed on the adsorbent (mg/g) at equilibrium, K_L is the constant related to the free energy of adsorption (L/mg) and q_{max} is the monolayer adsorption capacity (mg/g).

- Linear Freundlich model equation

$$Ln(q_e) = \ln(K_F) + \frac{1}{n} Ln(C_e) \quad \text{Equation S4}$$

where, C_e is the concentration of the dye solution (mg/L) at equilibrium, q_e is the amount of dye removed on the adsorbent (mg/g) at equilibrium, K_F (mg/g) is a Freundlich constant (relative adsorption capacity of the adsorbent). n is a Freundlich constant that represents the adsorption intensity

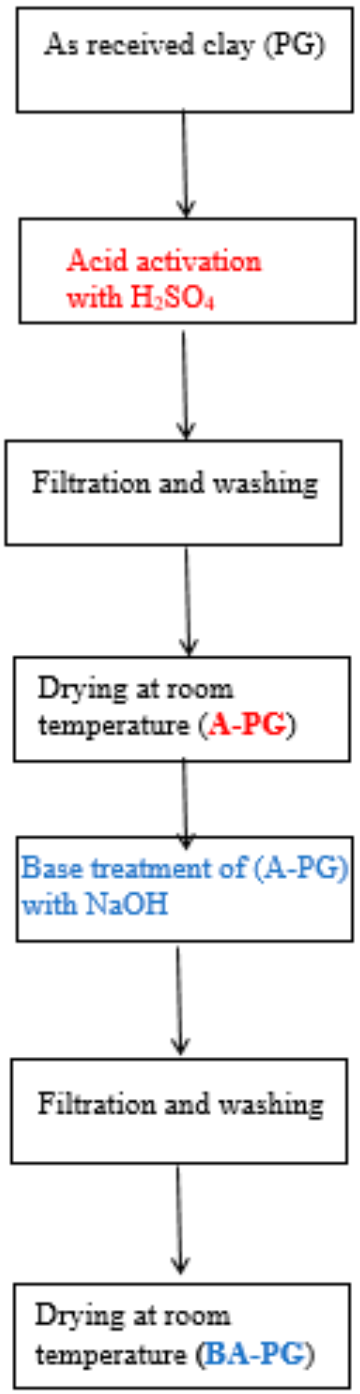


Figure S1: Flow chart of sample preparation

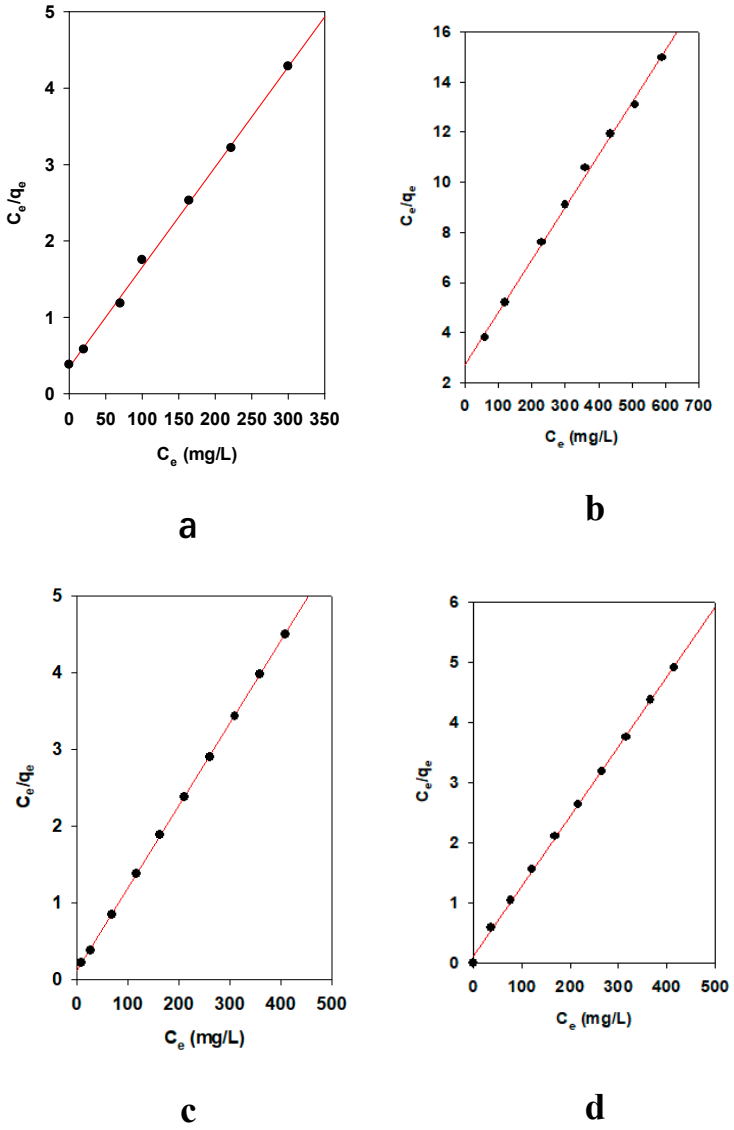


Figure S2: Langmuir isotherms for basic-blye-41 dye on selected samples (a) A-PG(0.2), (b) A-PG(0.5), (c) BA-PG(0.2), and (d) BA-PG(0.3).