

Article

Magnetic Mg-Fe/LDH Intercalated Activated Carbon Composites for Nitrate and Phosphate Removal from Wastewater: Insight into Behavior and Mechanisms

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Supplementary Materials

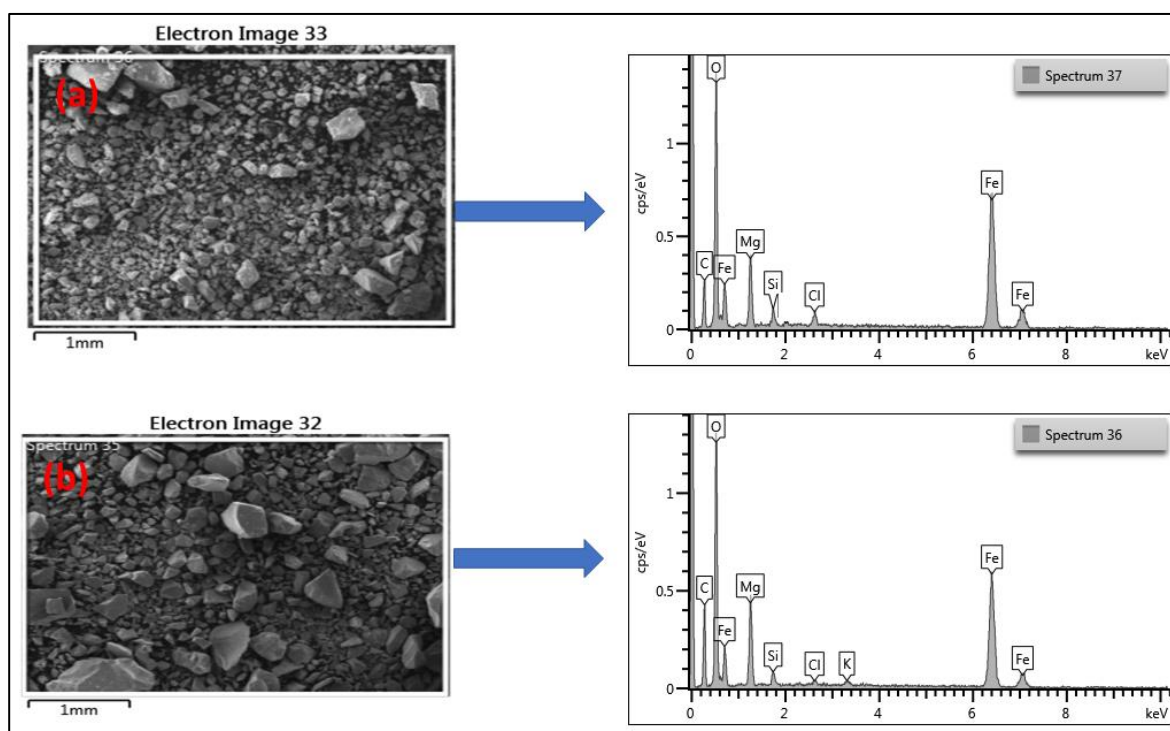


Figure S1. Electron images and elemental composition spectrums of composites by SEM-EDX technique: (a) SBAC₁₀₀MgFe, (b) SBAC₅₀₀MgFe.

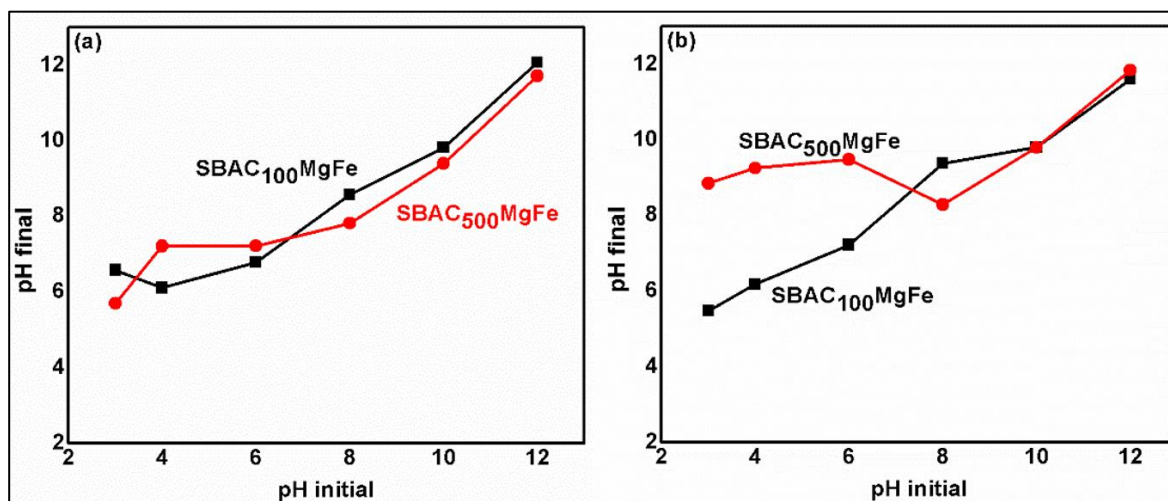


Figure S2. Equilibrium pH value of phosphate (a) and nitrate (b) after adsorption by SBAC-MgFe composites.

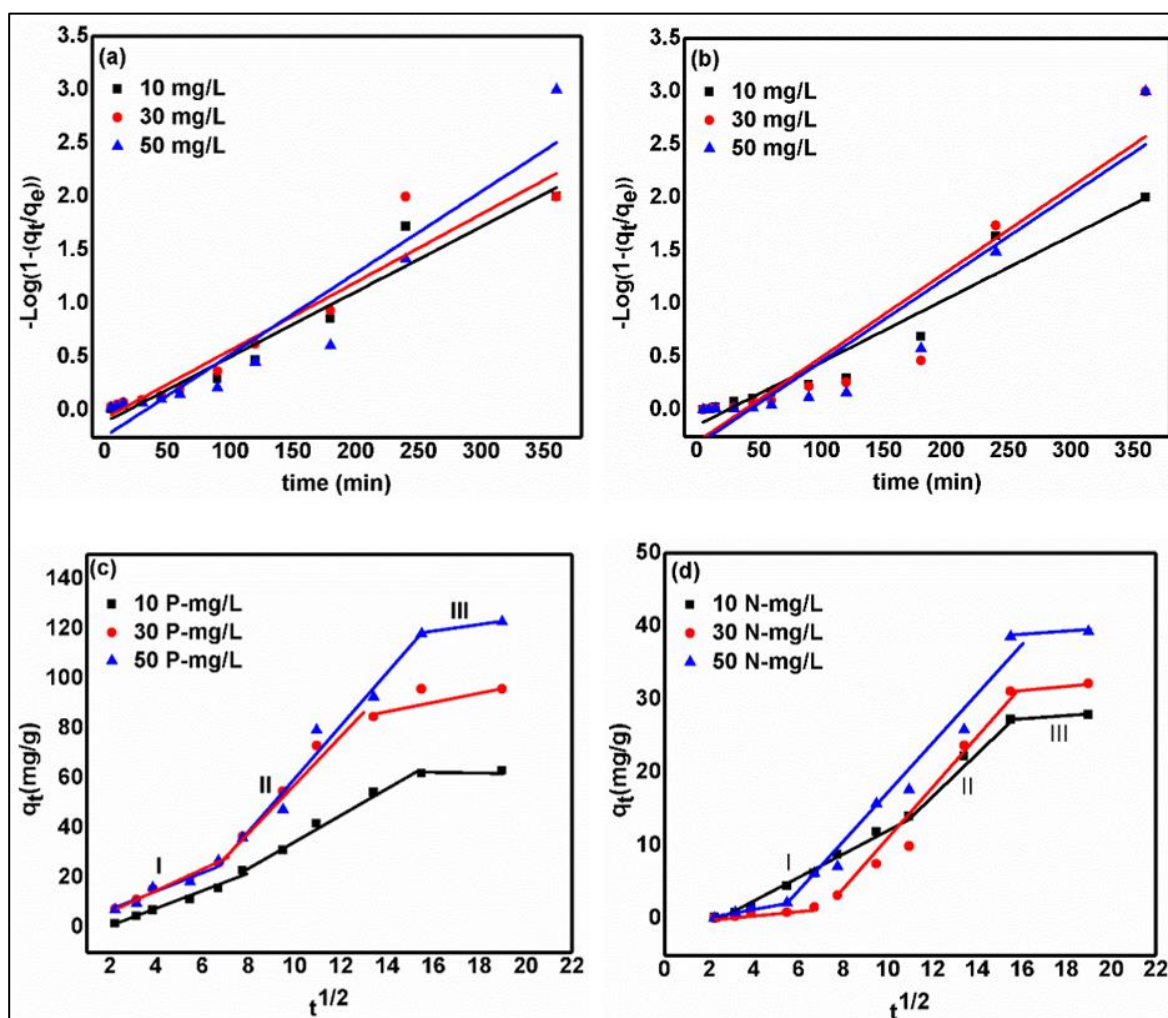


Figure S3. Film diffusion (a,b) and intraparticle diffusion (c,d) model plots for adsorption of phosphate and nitrate on SBAC₁₀₀MgFe composite.

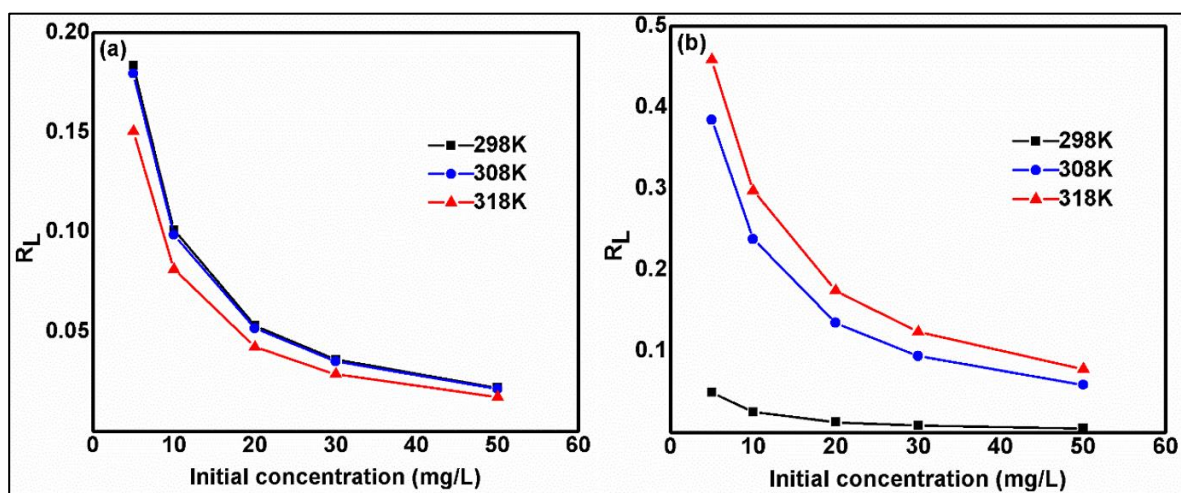


Figure S4. Plot of separation factor (R_L) versus initial concentration at three different temperature values for phosphate and nitrate adsorption on SBAC₁₀₀MgFe.

Table S1. Composition of wastewater obtained from domestic wastewater treatment plant of Imam Abdulrahman Bin Faisal University (Number of samples = 3).

Parameter	Unit	Average Value	Standard Deviation
pH	pH unit	7.23	±0.210
Temperature	°C	20.5	±0.541
Conductivity	µs/cm	677	±150
Turbidity	NTU	74.0	±5.50
Total dissolved solids	mg/L	327	±87.4
5-day biological oxygen demand (BOD ₅)	mg/L	76.7	±21.0
Chemical oxygen demand (COD)	mg/L	141	±23.7
Total nitrogen	mg/L	16.0	±3.33