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Supplementary Materials: Copper Removal from Water by Citrate-Stabilized Amorphous Calcium Phosphate Nanoparticles: Adsorption Performance and Mechanisms

Miaomiao Wang, Yuwei Jiang and Junjun Tan *

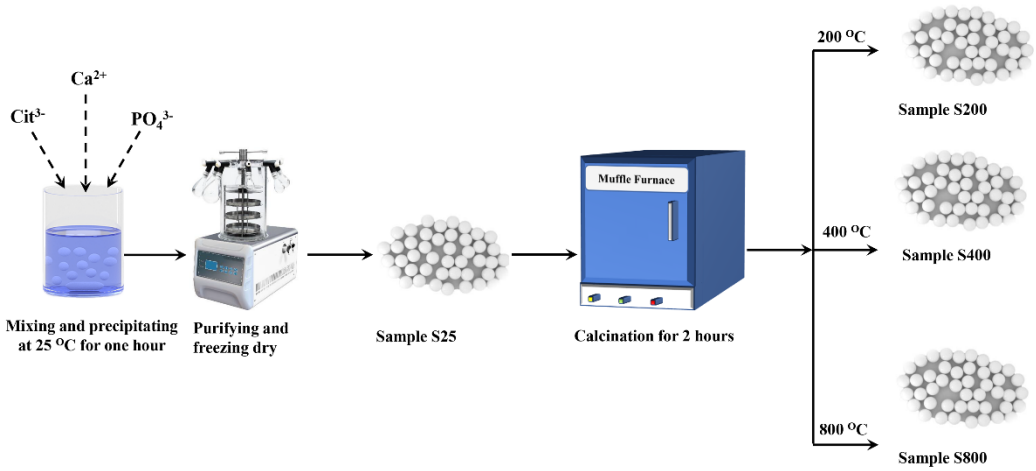


Figure S1. Schematic illustration of samples preparation.

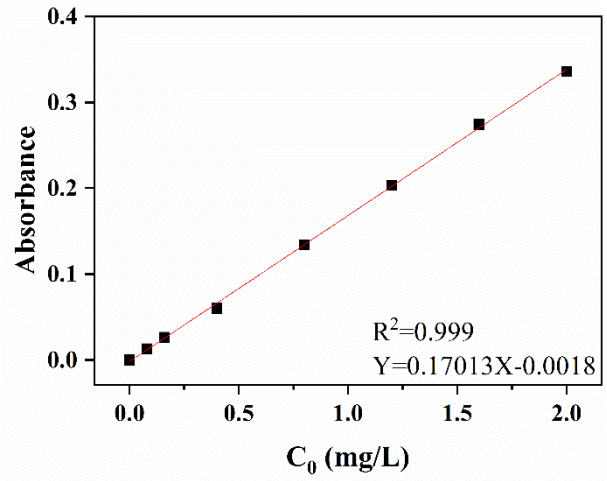


Figure S2. Standard curve showing the linear relationship between copper ion concentration and absorbance (pH = 5.5). The regression equation was Y = 0.17013X − 0.0018 with a correlation coefficient (R^2) of 0.999.

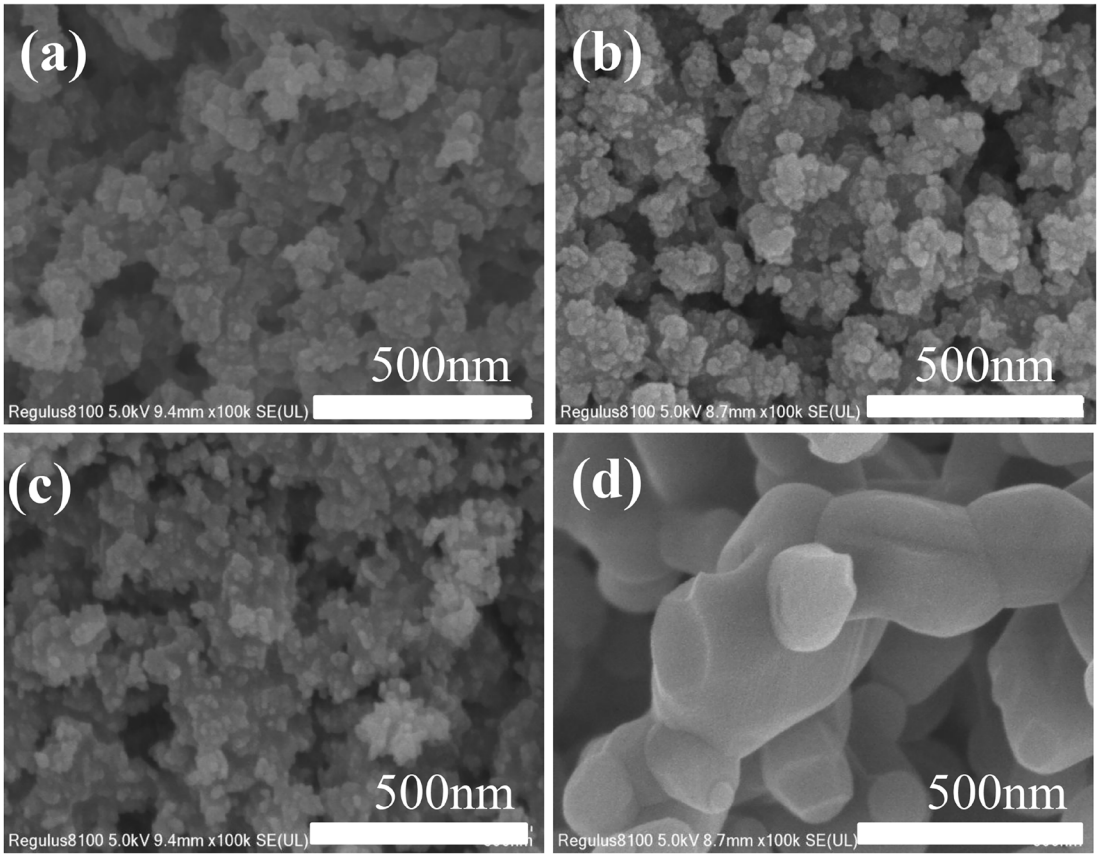


Figure S3. SEM images of the prepared samples at a magnification of 10,000×, (**a**) S25, (**b**) S200, (**c**) S400, (**d**) S800.

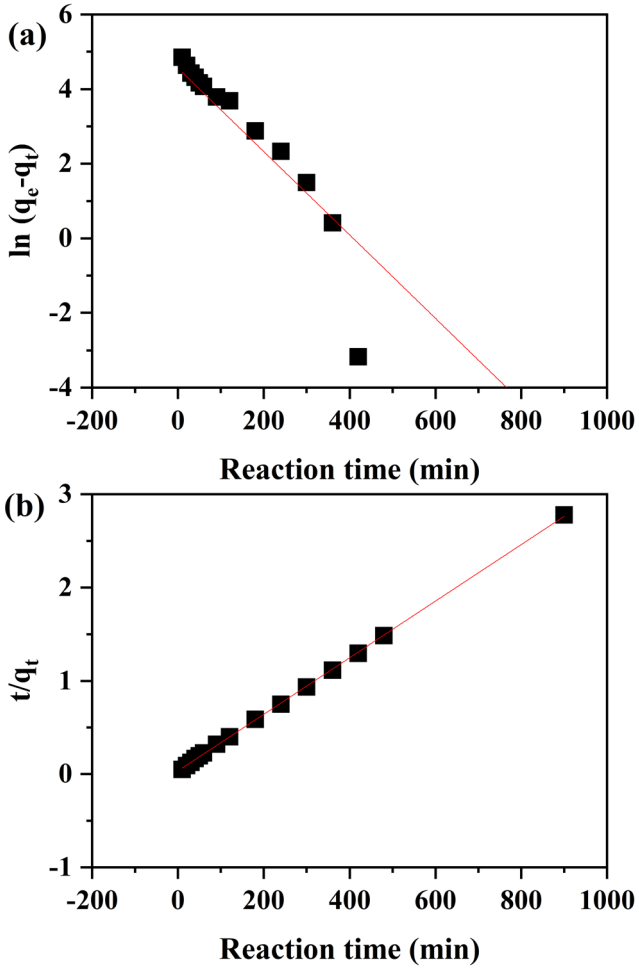


Figure S4. Kinetic modeling of copper ion adsorption for the sample S25: (**a**) pseudo-first-order plot, (**b**) pseudo-second-order plot. Experimental conditions: C_0 = 200 mg/L, adsorbent dose = 0.4 g/L, temperature = 25°C, and pH = 5.5.

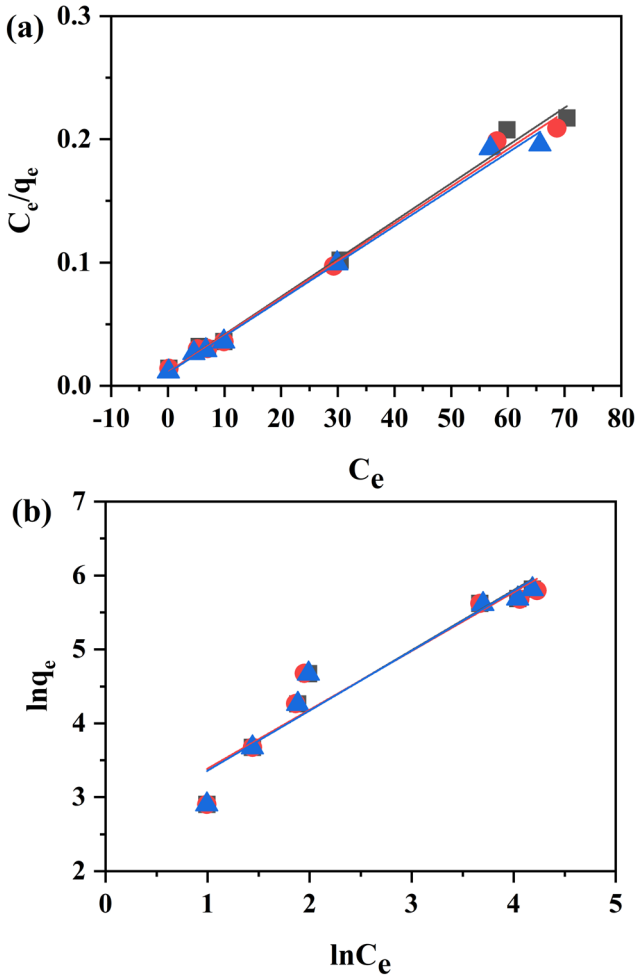


Figure S5. Linear fitting of adsorption isotherms for copper ions: Langmuir model for S25 (**a**); Freundlich model for S25 (**b**). Experimental conditions: C_0 [Cu^{2+}] = 5 – 200 mg/L, adsorbent dose = 0.4 g/L, temperature = 25 °C, and pH = 5.5.

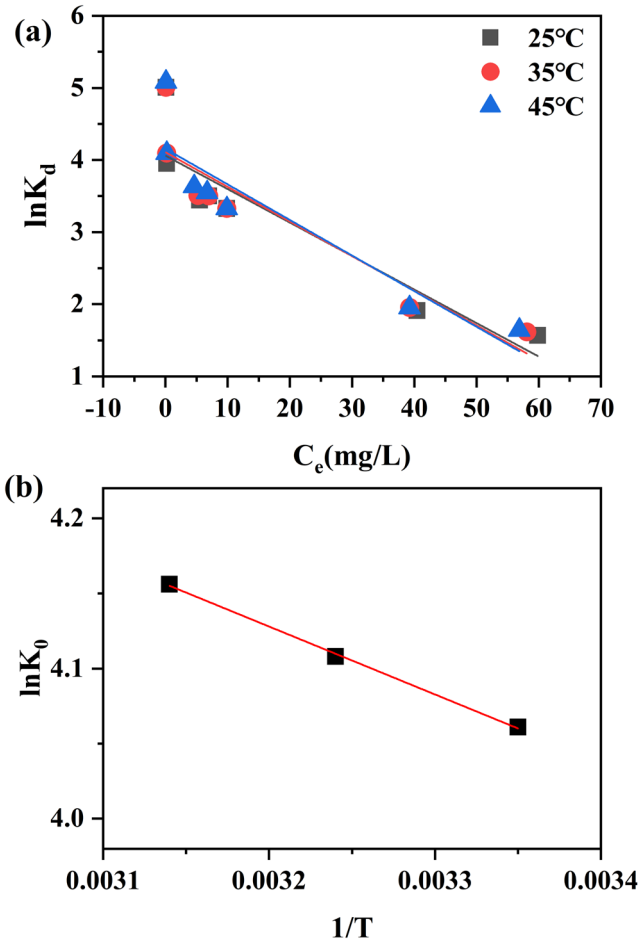


Figure S6. Linear fitting of thermodynamic parameters for copper ion adsorption: (**a**) plots of $\ln K_d$ versus C_e for sample S25; (**b**) plots of $\ln K_0$ versus 1/T for samples S25. Experimental conditions: C_0 $[Cu^{2+}]$ = 5–200 mg/L, adsorbent dose = 0.4 g/L, temperature = 25 °C, and pH = 5.5.

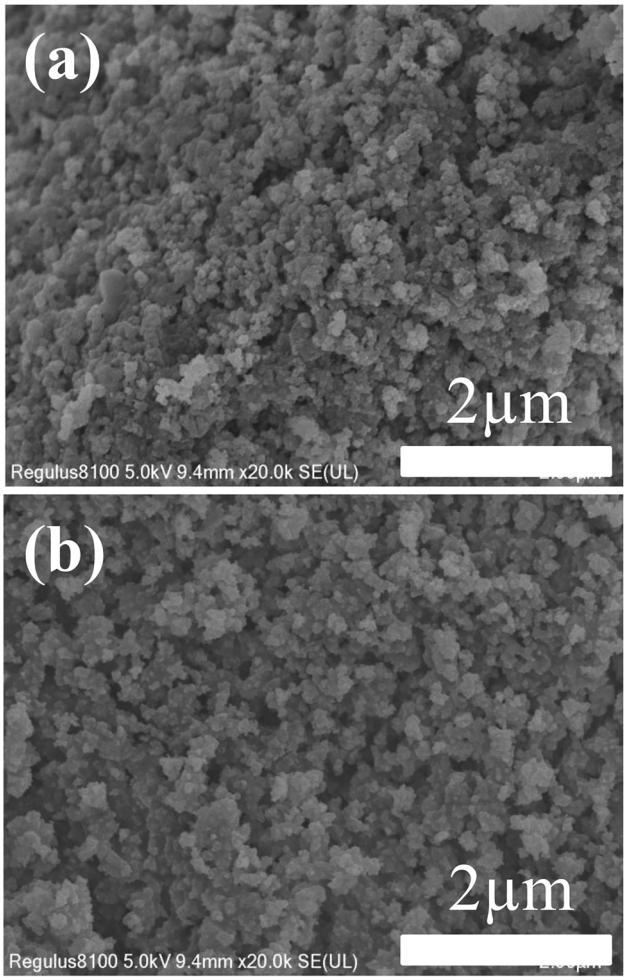


Figure S7. SEM images of the sample S25 before and after copper adsorption: (**a**) before adsorption and (**b**) after adsorption.

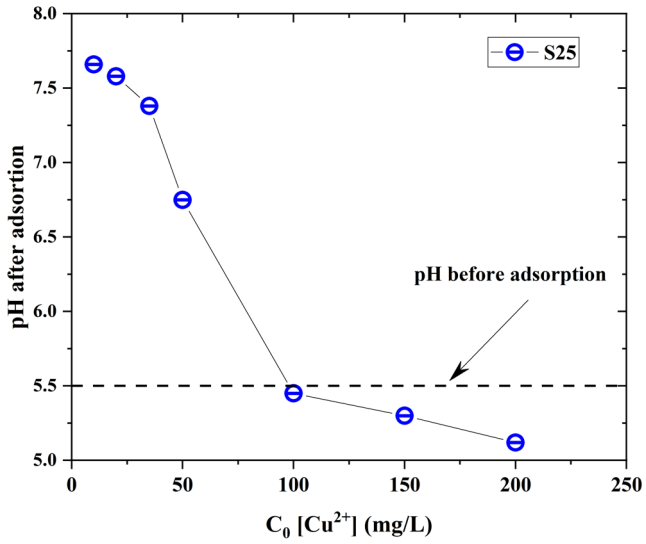


Figure S8. pH variation of the solution after copper adsorption of the sample S25.