Interfacial solid-phase chemical modification with Mannish reaction and Fe (III) chelation for designing the lignin-based spherical nanoparticle adsorbents for highly efficient removal of low concentration phosphate from water

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The *Supporting Information Available* contains 2 pages, including 2 Figures
Figures: Figure S1 and Figure S2

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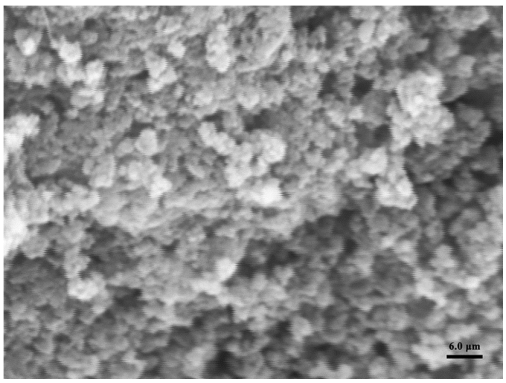

Fig S1. High-rate (20K times) scanning electron microscopic image of Fe-CL

High-rate (20K times) scanning electron microscopic (SEM) images confirmed that the particle size of the adsorbents was about 450 nm.

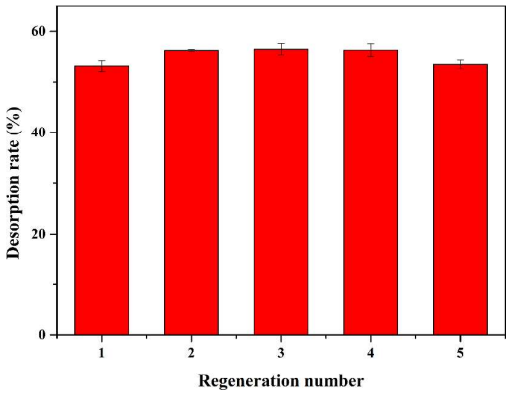

Fig S2. Cycle regeneration of batch experiments for Fe-CL (353 K, pH 7)

The desorption rate had been researched, even after five times, the desorption efficiency was also about 55% (Fig S2), this result can also confirm the strong bonding between Fe-CL and phosphate.[1]

Reference

(1) Qiu, H.; Liang, C.; Zhang, X.; Chen, M.; Zhao, Y.; Tao, T.; Xu, Z.; Liu, G. Fabrication of a Biomass-Based Hydrous Zirconium Oxide Nanocomposite for Preferable Phosphate Removal and Recovery. *ACS Appl. Mater. Interfaces* **2015,** *7*, 20835-20844.