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ROBUST PHOSPHATE CAPTURE OVER ADSORBENTS DERIVED FROM LANTHANUM METAL ORGANIC FRAMEWORKS

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Excessive phosphate in water can cause severe water quality problems owing to its somatotrophic effect on microorganisms. Herein, a superstructural phosphate scavenger, La-MOF-500, composed of $La_2O_2CO_3$ is rationally designed by derivation from lanthanum metal organic frameworks (La(1, 3, 5-BTC) $(H_2O)_6$) by calcination. La-MOF-500 has a hierarchical micro/nano structure of microsphere-nanorod-nanoparticle: urchin-like microsphere is comprised of many nanorods and the individual nanorod was formed by piling up plentiful thin nanoparticles. The hierarchical micro/nano structure provides La-MOF-500 with an intriguing phosphate capture capacity of 173.8 mg P/g and a high utilization of lanthanum active sites, simultaneously, which was a challenge in previous research. Moreover, La-MOF-500 exhibits a good tolerance of foreign tolerance of foreign species. Even in the water from Songhua River, China, La-MOF-500 can remove phosphate to be less than 10 µg P/L. This development is expected to be meaningful for practical water purification.

Biography

Xintong Zhang is pursuing her PhD at School of Municipal and Environmental Engineering in Harbin Institute of Technology. She specializes in Water-Treatment. She is working on nutrient-starvation antibacterial and fabrication of corresponding adsorbent that can capture phosphate and organic matter in water, synchronously. She has published two papers in *Journal of Materials Chemistry A* and *Chemical Engineering Journal* respectively.

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