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Insight into biological phosphate recovery from sewage

Yuanyao Ye^a, Huu Hao Ngo^{a,b*}, Wenshan Guo^a, Yiwen Liu^a, Xinbo Zhang^b, Jianbo Guo^b,
Bing-jie, Ni^c, Soon Woong Chang^d, Dinh Duc Nguyen^d

^aCentre for Technology in Water and Wastewater, School of Civil and Environmental Engineering, University of Technology Sydney, Sydney, NWS 2007, Australia

^bDepartment of Environmental and Municipal Engineering, Tianjin Chengjian University, Jinjing Road 26, Tianjin 300384, China.

^cState Key Laboratory of Pollution Control and Resources Reuse, College of Environmental Science and Engineering, Tongji University, Shanghai 200092, PR China

^dDepartment of Environmental Energy and Engineering, Kyonggi University, 442-760, Republic of Korea

Abstract

The world's increasing population means that more food production is required. A more sustainable supply of fertilizers mainly consisting of phosphate is needed. Due to the rising consumption of scarce resources and limited natural supply of phosphate, the recovery of phosphate and their re-use has potentially high market value. Sewage has high potential to recover a large amount of phosphate in a circular economy approach. This paper focuses on utilization of biological process integrated with various subsequent processes to concentrate and recycle phosphate which are derived from liquid and sludge phases. The phosphate accumulation and recovery are discussed in terms of mechanism and governing parameters, recovery efficiency, application at plant-scale and economy.

Keywords: phosphate recovery, biological process, anaerobic digester supernatant, sewage sludge, sewage

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