过程与工艺

A Novel Approach to Bioleach Soluble Phosphorus from Rock Phosphate

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摘要 A novel approach to bioleach soluble phosphorus from rock phosphate, involving the bio-oxidation of pyrite by adaptated Acidithiobacillus ferrooxidans (At. f) and the product of sulfuric acid to dissolve rock phosphate, has been proposed in this paper. The soluble phosphorus could be leached more effectively in the presence of pyrite by At. f than that leached directly by sulfuric acid. The optimal technological parameters are presented. The highest phosphorus leaching rate is 9.00% when the culture substrate is the mixture of FeSO4·7H2O and pyrite, the phosphorus leaching rate is 8.00% when the initial pH and culture time are 2.5 and 5 d, respectively. The optimal rock phosphate particle size is 0.05 mm for the leaching of phosphorus. The bigger the grains of pyrite, the lower the phosphorus leaching rate. The bacterium At. f should be appropriately adaptated, which makes it easier to bioleach soluble phosphorus from rock phosphate.

关键词 bioleach,soluble phosphorus,rock phosphate,pyrite,Acidithiobacillus ferrooxidans

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