عنوان مقاله:

Simulation of Water Biodemetalization in Bioreactor

محل انتشار:

هفدهمین کنگره ملی مهندسی شیمی ایران (سال: 1400)

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خلاصه مقاله:

Heavy metals are considered as a dangerous and poisonous waste. So, biotechnology is used for eliminating pollutants which is considered as both on economic and eco-friendly choice. Since development biotechnology process needs more information and details, it is necessary for designers and engineers to benefit from a set of resources and different computer applications. In this research, the operation of Hirsuta bacteria in pollutant eliminating was simulated. Simulation was done by the use of Comsol ۴.۴ software in both two-dimensional and three-dimensional. Mass transfer and momentum in eliminating process was discussed. In laboratory situation, ۱۰% removing in ۱۲۰ rpm and ۱۲% deletion in ۱۶۰ rpm and ۲۰۰ rpm were obtained. While, in simulation these rates were increased in both rpm. The results of this simulation with error percentage of less than ۲۰% showed a great conformity .with laboratory results

کلمات کلیدی:

Simulation, COMSOL Multiphysics software, Removal of contaminants, Heavy metals, Vanadium