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URANIUM REDUCTION BY BACTERIA

M. Baiget¹, M. Constanti¹, F. Medina¹, M.T. Lopez²

¹University Rovira i Virgili, Tarragona, Spain; ²Enresa, Spain

Abstract

The use of microorganisms in bioremediation is a clean and environmental friendly method to decontaminate toxic compounds from different habitats. In this study, uranium (VI) dissolved in water has been reduced to uranium (IV) which precipitates, in order to decontaminate an aquifer from an inactive mining area.

The bioreduction has been studied through two approaches. On one hand, *Shewanella* was used and it reduced 50 mg/L uranium in 3h hours in synthetic contaminated water. However it does not reduce uranium in real contaminated water. On the other hand, the autochthonous microorganisms with reduction capacity were stimulated. Several electron donors were tried and lactate showed the best results. The combination of active coal and lactate increased the reduction of uranium. Further, the addition of iron nanoparticles to the abovementioned combination reduced uranium in 30 min.
