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BIOLEACHING OF URANYL IONS FROM URANIUM ORES BY SOME ALGAE

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Abstract

It was investigated the bioleaching of uranyl ions from uranium ores, in aquatic medium with algae: *Scenedesmus quadricauda* and *Nostoc linkia* under different experimental conditions. The oxidation of U(IV) to U(VI) species, like uranyl ions was done by means of the atomic oxygen generated through photosynthesis by the aquatic medium from solution above of uranium ores. After almost 10 days of direct contact with the given microorganisms, it was observed a bioleaching degree between 10% and 20% in UO_2^{2+} ions. The experiments were achieved at 30°C, in the presence of continuous illumination at 2×10^{-7} J/cm^{2}sec. The bioleaching results were observed spectrophotometrically in UV-VIS, measuring the absorbance of uranyl ions at 665 nm. After achieving the maximum bioleaching degree during 10 days, a process of bioaccumulation of uranyl ions was observed. This statement was confirmed by decreasing in time of absorbance in the UV-VIS spectra of solutions and also by means of IR spectra drawn on the alga microorganisms which retained former these cations.

Keywords: bioleaching, uranium, algae, *Scenedesmus quadricauda*, *Nostoc linkia*

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