BIOEXTRACTION OF URANIUM FROM SOME EGYPTIAN ORES BY MICROORGANISMS

BY

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ABSTRACT

Hala Aly Ibrahim "Bioextraction of uranium from some Egyptian ores by microorganisms" Unpublished M.Sc.Thesis, University of Ain Shams, Faculty of Agriculture, Department of Agric. Microbiology, 2001.

Ninty-seven isolates were obtained from different ores and mine water. Sixty-six of them belonged to fungi group while thirty one belonged to bacteria group. The highest percentage of fungal isolates was obtained from carbonate ore (8 MH). The non-sterilized ores gave high extraction of uranium comparing to the sterilized ores. The highest extraction of uranium being 57.1% and 54.2% U_3O_8 were obtained by *Aspergillus terreus* and *Aspergillus fumigatus* respectively, after the fourth day in the presence of 3% g ore/150 ml medium. Using non-sterilized Helwan water as a natural medium in the presence of 3% pulb density increased the extraction by 1.38 fold comparing to the sterilized treatment. The highest yield of uranium being 59.25% U_3O_8 was obtained using modified natural medium 4.0 g L^{-1} $(NH_4)_2SO_4$,4.0 g L^{-1} $FeSO_4$, pH 2.8 and non sterilized ore incubated at 35^oC for 21 days. The extraction of uranium reached 71.9% using column technique with 200 ml h^{-1} withdrawn rate after four days in the presence of 8% pyrite ,1kg ore and modified non sterilized natural medium.Uranium had been recovered from bacterial pregnant leach liquor using Amberlite IRA-400 then precipitated by using NaOH

Key words: Uranium, *Aspergillus fumigatus*, *Aspergillus terreus* , bioleaching , bioextraction.

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