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**Loutfy H. Madkour**

Nile Valley phosphate deposits (East Luxor locality), considered in Egypt as a rather rich source of uranium, is subjected to mineralogical, chemical, spectral and infrared spectrometric analyses. A process is proposed for the hydrometallurgical treatment of the phosphate rock for the recovery of uranium and the production of phosphatic fertilizers, without polluting the environment with radioactive material. A uraniferous iron phosphate concentrate (2.5% U) which is produced as a by-product, is separately processed in an alkaline leaching step using a high concentration of both  $\text{Na}_2\text{CO}_3$  and  $\text{NaHCO}_3$  under oxidizing conditions. The product, sodium uranyl tricarbonate complex  $\text{Na}_4\text{U}_2(\text{CO}_3)_3$  liquor, is converted into the conventional uranium concentrate of sodium diuranate  $\text{Na}_2\text{U}_2\text{O}_7$  through sodic decomposition treatment. Uranium metal is cathodically deposited from a number of solutions containing the ore metal concentrate liquor, and a complexing agent at controlled pH. The effects of various factors on the deposition of uranium are discussed. The

**results of spectrophotometric and chemical analyses  
revealed that the purity of the deposited metal is > 99%.**

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