

## Towards a more safe environment: (4) Disposability of uranium by some clay sediments in Egypt.

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Due to the increase concerns about the environmental pollution problems, it is so important in waste disposal management to perform an accurate exploration of geological barriers, which must be suitable for waste materials disposal. Clay sediments play an important role as natural adsorbents to immobilize heavy and nuclear metals contaminants.

For the present study, the clay samples were collected from either clay exploitation localities or from nearby radioactive mineralization in Egypt. Obtained results indicated that uranium adsorption and desorption differ importantly in accordance with the source of clay sediment used. In addition, its adsorption increases by increasing uranium initial concentration. The obtained data were found to fit of Langmuir equation isotherms.

Adsorption maxima (B) for uranium were high for Abu Tartur bentonite followed by El Hafafit vermiculite and was the least for Kalabsha kaolinite. However, the binding energy (b) that affects the adsorption process can be arranged in the opposite direction. Desorption of uranium by HCl, NaOH and tap water show clear ability of the different sediments to release uranium. This was a function of leaching solution and binding energy. Finally, the changes in the clay sediments through adsorption and desorption processes were investigated in detailed by I.R spectroscopy.

**Key words:** adsorption-desorption – clay sediments – I.R - nuclear - pollution- uranium.