

## Uranium and Thorium Measurements in the Water along Oum Er-Rabia River (Morocco)

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**Abstract :** In this work, different river water samples have been collected and analyzed from different locations along Oum Er-Rabia River in Morocco. The uranium ( $^{238}\text{U}$ ) and thorium ( $^{232}\text{Th}$ ) concentrations were investigated in the studied river and dam water samples using Solid State Nuclear Track Detector (SSNTD). Mean activity concentrations of uranium and thorium in water were found to be between 12 - 37 Bq  $\text{m}^{-3}$  and 2-10 Bq  $\text{m}^{-3}$ , respectively. The pH measured at all river water samples was slightly alkaline and ranged from 7.5 to 8.75. The electrical conductivity ranged from 2790 to 794  $\mu\text{S cm}^{-1}$ . It was found that uranium and thorium concentrations were correlated with some chemical parameters in Oum Er-Rabia River water. The uranium concentrations found in river water are insignificant from the radiological point of view. The recommended value for uranium in drinking water based on its toxicity given by the Federal Environment Agency. This corresponds to an activity concentration of  $^{238}\text{U}$  of 123.5 mBq  $\text{L}^{-1}$ . In none of the samples, the uranium activity exceeds this value.

**Keywords :** uranium, thorium, conductivity, water, SSNTD

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