



Crystallographic Study of U-Th bearing minerals in Tranomaro, Anosy Region- Madagascar

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As an alternative to conventional fossil fuel, there is a renewed interest in the nuclear fuel to support increasing energy demand. New studies are then undertaken to characterize Madagascar U-Th bearing minerals. This is the case for the urano-thorianite bearing pyroxenites in the south East of Madagascar. In this region, several quarries were abandoned, after being mined by the French Atomic Energy Commission (C.E.A) in the fifties and sixties and are now explored by new mining companies. For this purpose, seven U-Th bearing mineral samples from old abandoned uranium quarries in Tranomaro, Amboasary Sud, Madagascar ($46^{\circ} 28' 0''\text{E}$, $24^{\circ} 36' 0''\text{S}$), have been collected. To determine the mineral microstructure, they were investigated for qualitative and quantitative identification of crystalline compounds using X-ray powder diffraction analytical method (XRD). Results showed that the U and Th compounds, as minor elements, are present in various crystalline structures. This is important to understand their environmental behaviours, in terms of crystallographic dispersion of U-Th minerals and their impacts on human health.

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