

Natural Radionuclide Analysis in Chattarpur Area of Southeastern Coastal Area of Odisha, India

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Abstract

The energy released in a spontaneous decay process of natural radionuclides is the main source of the total radiation dose to human beings. Natural radionuclides are widely distributed in soil, rocks, air, and groundwater. In present investigation, the analysis of terrestrial radionuclides such as ²²⁶Ra, ²³²Th, and ⁴⁰K in soil and sand of Chattarpur area of southeastern coast of Odisha has been carried out using NaI(Tl) gamma ray detector. The higher activity concentrations of naturally occurring radionuclides have been reported from the study area. The gamma radiation dose originating from the terrestrial radionuclides was found to vary from 95 to 1813 nGy/h with an average of 700 nGy/h. This study is important to generate a baseline data of radiation exposure in the area. Health hazard effects due to natural radiation exposure are discussed in details.

Key words: natural radionuclides, health hazard, radiation exposure, alpha index.