

ABSTRACT

It is well known that presence of radioactivity in the environment is hazardous for the mankind and other living things. Radon (^{222}Rn) and Thoron (^{220}Rn) gases as well as their daughter products are present everywhere in the environment. Radium (^{226}Ra) is the precursor of radon/thoron and is present in trace amounts in all type of rocks and soil. The soil and the bedrock, is the major source of radon\thoron. If the soil above the bedrock has an enhanced content of uranium-238, the soil is a potential source of the radon gas present in the soil gas. At least 80% of the radon emitted into the atmosphere comes from the top few meters of the ground.

Radon/Thoron flux measurement has been carried out in the open environment of Lahore and Kasur districts, Pakistan. The measurements were based upon passive detection of Radon/Thoron using CN-85 Solid State Nuclear Track Detectors in the flux measurement devices, namely SSNTD tubes. The average values of Radon/Thoron flux, concentration and annual dose are found to be: In Lahore: $12.172 \text{ tracks cm}^{-2} \text{ hr}^{-1}$, 135.24 Bq m^{-3} and 1.549 m Sv respectively, In Kasur: $12.457 \text{ tracks cm}^{-2} \text{ hr}^{-1}$, $138.248 \text{ Bq m}^{-3}$ and 1.6 m Sv respectively, these values are well below the limits as described in the International Committee for Radiation Protection, report number 65 (ICRP-65).