ABSTRACT

This project is intended to perform a comprehensive survey of natural and man made radioactive pollutants in the outdoor environments of Sheikhupura and Gujranwala districts, Pakistan. This study will be helpful for developing methodologies to detect and monitor radioactive pollutants and to find ways and means of mitigating their deleterious effects on human health.

Radionuclides present in nature such as ^{238}U, ^{232}Th, ^{40}K, ^{226}Ra and ^{222}Rn sometimes cause deleterious effects on human health. It is necessary to identify these radionuclides and their origin in indoor as well as outdoor environments. If radionuclides are found above the alarming levels then methods must be adopted to mitigate the level of radioactive pollutants in the environment.

Soil samples were collected from cash crops areas from Sheikhupura and Gujranawala districts. The soil collection protocol was developed. The statistical effects of girding on the radionuclides like ^{226}Ra and ^{222}Rn concentration were studied. The measured activities of radionuclides such as ^{222}Rn and ^{226}Ra were used to determine the radiological doses to the people those of in the open environment. The statistical effects of soil collection was also be studied. The concentration of the radionuclides ^{226}Ra and ^{222}Rn present in the soil of Sheikhupura and Gujranwala districts was determined.

These results will be useful for ISO 14000 certification of our cash crops grown in the Sheikhupura and Gujranwala districts by providing a profile of radionuclides present in these districts.