D-44: Levels of natural radioactivity in some commonly used fertilizers

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Fertilizers have become an essential component and used in increasing quantities to replenish natural nutrients depleted from the soil in agricultural practices. Commercial fertilizers have uranium. thorium and other members of their decay series and ^{40}K as the principal radio elements. The phosphorous component of the fertilizer is responsible for most of the uranium and thorium decay series radionuclides. Three different commercial fertilizer blends and 7 basic fertilizers were studied to determine the natural radioactivity levels. In the phosphate group of fertilizers studied, Eppawela apatite contained the lowest concentration of radioactivity having activity concentrations of 66 Bq kg^{-1} of ^{232}Th. Levels of U and ^{40}K were negligible. The phosphate fertilizer saphose contained the highest activity concentrations of 90, 77 and 235 Bq kg^{-1} of ^{238}U, ^{232}Th and ^{40}K respectively. Among the other fertilizers studied, urea had negligible levels and fertilizer mixture T-750 had 10 and 217 Bq kg^{-1} of ^{238}U and ^{40}K activity concentrations resp. Selection of proper fertilizers would help reduce the pollution of the environment by radioelements.