

Uranium accumulation in sandy soil in an arid region due to agricultural activities.

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This work aims at studying the accumulation of uranium in sandy soil in an arid region due to the agricultural activities i.e. long time phosphate fertilizer application. Twenty eight soil samples and 14 well water samples were collected from 14 locations. Two soil samples were collected from each location; one from, 20 years ago, cultivated soil and the other from uncultivated soil. Leachable and total uranium concentrations in soil and uranium concentration in water were determined by ICP-MS. Physical (caly, silt and sand percentages) and chemical properties (pH, EC, major actions and major anions) of soil samples, and chemical properties of water samples were estimated. The mean (range) acid leachable and total uranium-238 specific activities in soil samples were 11.1 (7.9-19.7) and 23.9 (21.1-27.3) Bq/kg dry weight respectively. The mean (range) of uranium concentration in water samples were 24.8 (2.9-87.2) Bq/l. The effect of agricultural activities, i.e. long-time phosphate fertilization and changes of soil physical and chemical properties, on uranium concentrations in soil and underground well water were discussed.