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title: **Natural radionuclides concentration in sandy soil and groundwater**

author(s): **Ashraf E. M. Khater**
King Saud University, Saudi Arabia, khater_ashraf@yahoo.com

A. Al-Saif
King Fasil College, Saudi Arabia, aliali@yahoo.com

Hamed Al-Sewaidan
King Saud University, Saudi Arabia, hamed@ksu.edu.sa

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Soil is a very dynamic ecosystem of particular importance since, once contaminate, the soil acts as a potentially long-term source of environmental contamination of food, water and air. Twenty eight (cultivated and uncultivated) sandy soil samples from 14 locations and 14 underground water samples were collected from a farm in Hail region, middle region of Saudi Arabia. This study aim at evaluating the relationship between the agricultural activities in sandy soil and the underground water quality. Concentrations of U, Th and K (total and leachable) in soil and water samples were measured using ICP-MS. After 25 years of agricultural activities, the average concentrations of natural radionuclides in sandy soil did not show an obvious variation that could be due to the high filtration rate and low absorption capacity, i.e. low clay and organic matter contents, of sandy soils. Concentrations of natural radionuclides in the underground water seem that did not affected by agricultural chemicals and fertilizers due to high depth (about 600 m) of the underground water aquifer.

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