

## البحث السادس (6)

**Title: “<sup>226</sup>Ra Aand <sup>228</sup>Ra concentrations in soils with intense groundwater irrigation in an arid environment”**

### **Journal**

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### **المخلص باللغة الإنجليزية**

The enhancing effect due to long-time irrigation with radium-containing groundwater on soil was investigated in this work. Samples from the Al-Qassim and Hail areas in Saudi Arabia were studied for their <sup>226</sup>Ra and <sup>228</sup>Ra inventories. Groundwater and soil samples were collected from 32 farms where agricultural activities are intensively irrigated with radium-containing groundwater. A noticeably good correlation was observed between radium isotopes inventories in the groundwater used for irrigation with those in the associated soils. It was concluded that there are enhanced levels of radium isotopes in the soils due to the existence of radium isotopes in irrigated groundwater. The additional annual effective dose values ranged between 0.00 and 0.412 with an average of 0.09 mSv/y