الملخصات (باللغة الإنجليزية والعربية) لأبحاث التقدم لترقية أستاذ الفيزياء تخصص (فيزياء إشعاعية)

البحث الأول(1)

Title: "**A rapid and inexpensive method for ^{226}Ra and ^{228}Ra measurements of high TDS groundwaters.**"

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الملخص باللغة الإنجليزية

A series of laboratory-scale studies was conducted by pre-concentrating ^{226}Ra from spiked water test samples using Purolite ion-exchange resin to evaluate the adsorption efficiency of the resin under varying conditions. After removing the resin from the columns, it was sealed in gas-tight containers and measured via gamma spectrometry. The Purolite resin showed high radium uptake and retention from natural waters in the presence of high iron and total dissolved solids (TDS). This procedure allowed us to process a large number of high TDS samples at a typical rate of 15 samples/day using three germanium detectors. Quality assurance and method validation have been achieved by analyzing selected ground water samples, with different ^{226}Ra activities and high TDS values, and comparing the results to those using alpha spectrometry with a ^{133}Ba yield tracer. There was very good agreement between the obtained ^{226}Ra activities by both methods.