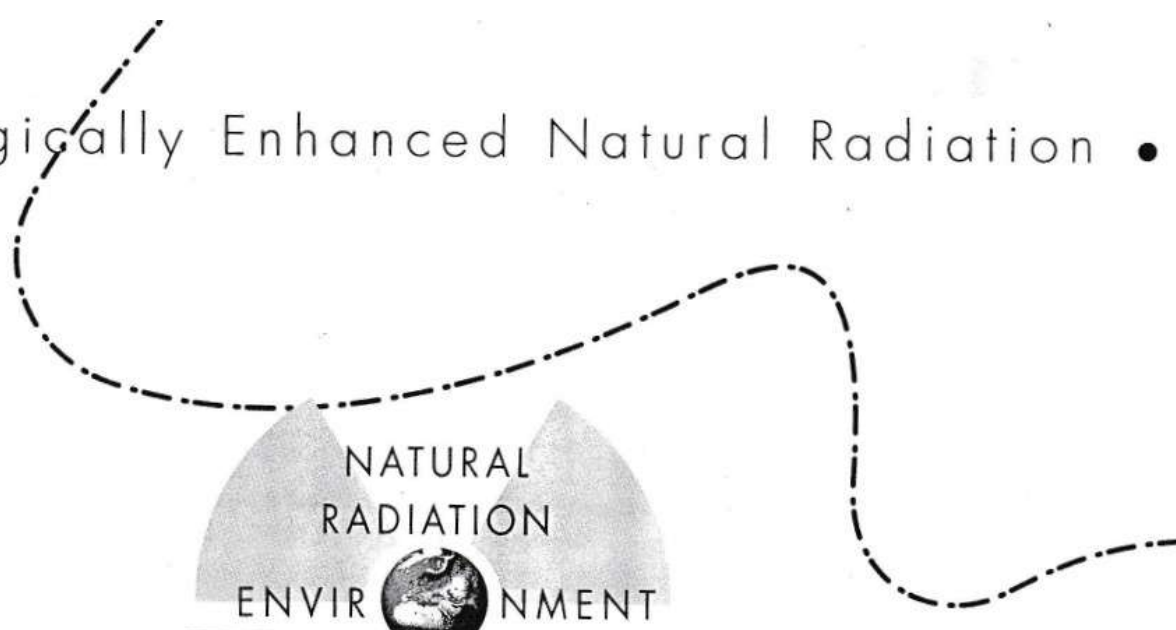


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Seventh International Symposium
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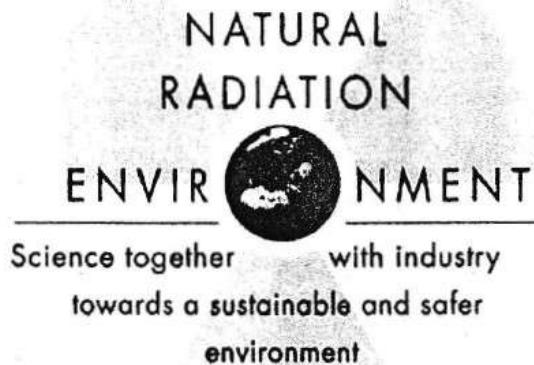
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URANIUM AND THORIUM IN CULTIVATED SOILS

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ABSTRACT

Uranium and thorium isotopes have been determined in cultivated soils previously planted by alfalfa and not fertilized for the last five years. Radiochemical procedure to separate uranium and thorium from other elements and to purify one from another was applied to physically prepared soils samples (10g). The procedure is based on successive ion-exchange separation (Dowex 1x4, 100-200 mesh), including preconcentration, usual chemical operations, leaching and solvent extraction. Standard tracer solutions of U-232 and Th-229, separated from ingrown daughters, were used for radiochemical yield recoveries up to 90%. Purified fractions were electrodeposited and thin-layer radioactive sources for alpha-spectrometry were obtained. Activity of the samples have been measured by alpha-counting systems with vacuum-chamber (20mbar), PIPS detector (100mm surface, resolution 24keV for Am-241, efficiency 2%) and SB detector (450mm, resolution 30keV for Am-241, efficiency 17%). The activities were in the range 0.3 – 12.0 mBq/g for uranium isotopes (U-234, 235, 238) and in the range of 25 - 40 mBq/g for thorium isotopes (Th-228, 230, 232).