

obtained
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from AECB

Measurement of Tritium in Canadian Food Items

The analysis of food items from the vicinity of Pickering and Perth (a "background" site), Ontario for free water tritium and organically bound tritium has been completed after numerous delays due to difficulty in obtaining special glass for sample containers, departure of experienced personnel and technical problems with the mass spectrometer used for decay ^3He measurements. The results are now being analyzed and a final report being prepared.

Previous progress reports have given the results obtained by liquid scintillation counting for the free water tritium from these food items. These results demonstrate the uptake of HTO from the local atmosphere by produce on store shelves as well as by produce grown in the area. The average tritium concentration of the free water of 10 main diet items from stores in the vicinity of Pickering NGS was 14 Bq/L, 3 times that of similar items grown at Perth, the background site. Produce grown in the Pickering area had a higher free water tritium content by a further factor of 5. If all body water of an individual were maintained at the level of free water tritium in locally grown produce, the dose rate would be $<2\mu\text{Sv/a}$, 0.1% of natural background radiation dose rate. The mass spectrometer results will show the incorporation of tritium into the organic components of these food samples as well as provide confirmatory results for the free water tritium contents.

The final report will present, in detail, the sampling and analytical procedures, the sample locations, and discussion of the significance of the observed concentrations and their variations.

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