

Technetium-99m (Tc-99m) with Triathler

Introduction

Tc-99m (half-life 6.015 h, 140.5 keV gamma emission) is a widely used isotope in nuclear medicine. The 140.5 keV gamma emission suggests that it can be counted in Triathler internal and external gamma detector.

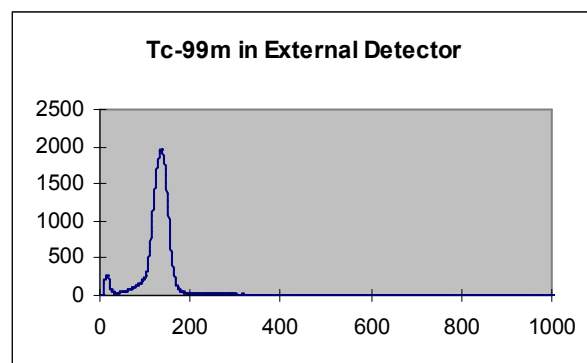
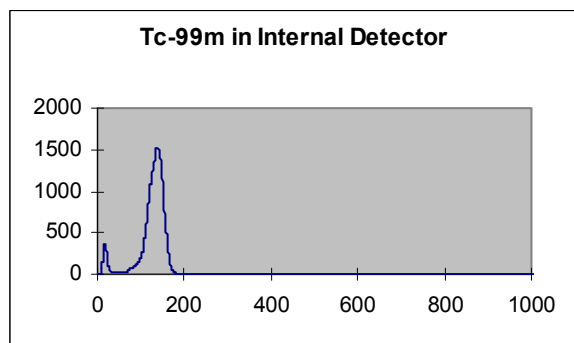
Materials and Method

The internal detector (1.25 inch NaI(Tl) crystal) belongs to Triathler Multilabel Tester (425-004) and Triathler Gamma Counter (425-024). The external detector (2 inch NaI(Tl) crystal), code 431-040, can be attached to all Triathler models and is also available as a separate NaI system 425-010.

For testing, Tc-99m was obtained in the form of technetium generator eluate from Turku University Hospital. A 10 µl aliquot was transferred into a microcentrifuge tube (Eppendorf®) which was counted both in Triathler Internal and in External gamma detector.

Results

The obtained gamma spectra are shown below. It can be seen that a useful counting window is 70 – 200.



Counting efficiencies in window 70 – 200 were:

Internal detector 57 %
External detector 74 %

Conclusions

Tc-99m can be reliably counted in Triathler. Both internal and external detectors yield sufficiently high efficiency.