

THE DEVELOPMENT OF TECHNETIUM - 99m RADIOPHARMACEUTICALS: TECHNETIUM - 99m GLUCOHEPTONATE

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ABSTRACT

A radiopharmaceutical kit for Kidney imaging has been developed. The kit provides a predispensed sterile formulation for reconstitution with sterile Tc-99m pertechnetate solution. The resulting injection contains Tc-99m labelled glucoheptonate. Each kit consists of 3 vials and each vial contains 200 mg. of Sodium glucoheptane and up to 1 mg of Stannous Chloride in freeze-dried form.

INTRODUCTION

A radiopharmaceutical of metastable technetium-99, Tc-99m glucoheptonate which is used as a kidney imaging agent, has been prepared at the Philippine Nuclear Research Institute (PNRI) in kit form so that it may be availed of by hospitals which have their own supply of Tc-99m generators.

EXPERIMENTAL PROCEDURE

The radiopharmaceutical is prepared by adding a freshly prepared solution of sodium glucoheptonate (2.0 g in 10 mL TDW) to 10 mg. of stannous chloride solution dissolved in 10 mL dilute HCl. The resulting solution is passed through a millipore filter (0.22 micron). Two mL fractions of this solution are dispensed into borosilicate vials and lyophylized if not used immediately. The filtrate (2 mL) is made to react with 2 mL of Tc-99m pertechnetate in normal saline solution for five to ten minutes after which it is ready for injection.

Formation of Tc-99m glucoheptonate was confirmed by

- (1) Establishing the R_f value of the tracer (Tc-99m) by paper chromatography using Whatman No. 1 as the chromatographic support and 70% ethanol as the developing solvent for 7 hours at 25°C;