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Tc-99m-N-ACETYL-CYSTEINE: LABELLING AND RADIOCHEMICAL EVALUATION. Faintuch,BL, Almeida MATM, Muramoto E, Carvalho OG.IPEN/CNEN,São Paulo,SP,Brazil.

The development of radiopharmaceuticals with possible tumor-imaging properties is desirable, and cysteine derivatives have been successfully used for this purpose. However, N-acetyl L-cysteine has not been reported among those studies, and as this is an easily available product, labelling with Tc-99m was undertaken. The first labelling was done with 10 mg of NAC dissolved in 1 ml of distilled water and adding 0.2 mg of stannous chloride solution in 0.1 N HCl and 1 ml/0.5 mCi of sodium pertechnetate. The mixture was stirred and allowed to stand for 30 min at room temperature and filtered through a 0.22 m membrane (millipore). Radiochemical purity and the stability of the final solution were determined by chromatography on Whatman 3 MM paper and TLC using acetone and saline as solvents. Optimization of the procedure involved the pH of the buffer solution,mass of the ligand(NAC),mass of the reductor,incubation time,and also the chromatographic routine.The improved mixture employed a buffer with pH 12,and 0.1 mg of $SnCl_2.H_2O$,for the same amount of ligand, isotope and time,and switching chromatography to TLC-aluminium,for finer resolution.In these conditions,radiochemical purity was found to exceed 98%,with excellent reproducibility and stability of the labelled compound, thus enabling to proceed to the future studies of uptake and biodistribution in experimental tumors.It is concluded that: 1) NAC belongs to a family of promising radiopharmaceutical compounds; 2) Labelling with Tc-99m was achieved with a high degree of purity and stability; 3) As a simple and inexpensive product, Tc-99m-NAC seems well-suited for subsequent studies in-vivo.