

SAIP 2011



Contribution ID : 411

Synthesis and Labelling of DISIDA

(N-2,6-diisopropyl-phenylcarbamoymethyliminodiacetic) acid

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Content :

Radiopharmaceuticals is compounds labelled with a radioactive isotope that are used for studying different organs in the human body. Technetium-99m (^{99m}Tc) labelled iminodiacetic acid (IDA) derivatives are commonly used as hepatobiliary imaging agents. Radiopharmaceuticals used for hepatobiliary imaging are divided into two groups based on the physiologic function of the liver they are designed to evaluate. The IDA agent of choice for NTP is DISIDA (N-2,6-diisopropyl-phenylcarbamoymethyliminodiacetic acid). A cold kit is a pre prepared vial consisting of the compound to be labelled with the radioactive isotope and a suitable reducing agent. The radioactive isotope of choice for IDA labelling is ^{99m}Tc . Kits for DISIDA is commercially available and usually contain the IDA derivative and stannous chloride dihydrate as the reducing agent. Twenty gram DISIDA is needed for each production batch of DISIDA kits Labelling is accomplished by adding $^{99m}\text{TcO}_4^-$ to the kit and mixing well. Approximately 3 to 5 mCi (111-185 MBq) ^{99m}Tc -IDA derivative is injected intravenously into patients who have fasted for 4 to 6 hours prior to administration. The biodistribution DISIDA was confirmed by performing a biodistribution study on a Chacma baboon. The yield of the DISIDA synthesis was improved from 26 - 34 g to 76 g (53%). The labelling with technetium give > 95% radiochemical purity. The improved synthesis resulted in increased cost effectiveness of the commercial DISIDA kits.

Level (Hons, MSc, PhD, other)? :

Internship project

Consider for a student award (Yes / No)? :

No

Short Paper :

Yes

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