

October 01-02, 2018
Stockholm, SwedenJ. med phys & appl sci 2018, Volume: 3
DOI: 10.21767/2574-285X-C1-003

SYNTHESIS, QUALITY CONTROL AND BIODISTRIBUTION OF TECHNEIUM-99M TRIAMCINOLONE ACETONIDE (^{99m}Tc -TA) COMPLEX: AN INFLAMMATION TRACER AGENT

Faheem Askari Rizvi¹, Syed Ali R Naqvi¹ and Samina Roohi²

¹Government College University Faisalabad, Pakistan

²Pakistan Institute of Nuclear Science and Technology, Pakistan

In the present study, synthesis of ^{99m}Tc -triamcinolone acetonide (^{99m}Tc -TA) complex and its stability using set of quality control parameters such as ligand concentration, reducing agent concentration, pH, temperature and reaction time was assessed. ^{99m}Tc -TA complex was characterized in terms of percent (%) yield, stability in saline and serum using chromatographic procedures. Radiochemically, the ^{99m}Tc -TA complex was found quite stable in saline and serum. After 30 min of reaction, the complex showed maximum radiochemical yield of 96.32% which decreased to 96.25% after 4 h of incubation period. In serum, the % yield of radiochemical was remained same up to 2 h which decreased to 93.5% at 24 h time point. Normal biodistribution pattern in Sprague Dawley rats revealed liver, stomach and kidneys as areas of high ^{99m}Tc -TA complex uptake ($8.44\pm 1.32\%$, $8.75\pm 1.03\%$ and $12.67\pm 1.21\%$, respectively) at 1 h post injection time point. Scintigraphy of ^{99m}Tc -TA in rabbits showed similar eco as observed in biodistribution study. Based on the promising results obtained in context of in vitro and in vivo stability and biodistribution, ^{99m}Tc -TA complex could be further studied to identify the inflammation based diseases.

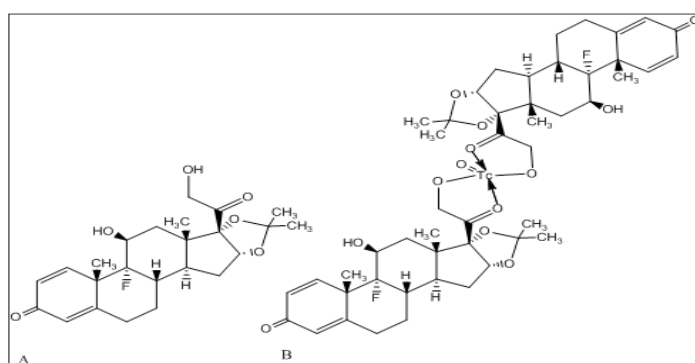


Figure 1: A) Structure of anti-inflammatory agent triamcinolone acetonide, B) the proposed structure of ^{99m}Tc -TA complex; the oxygen from hydroxyl and carbonyl carbon from two molecule of TA make coordination bond and present at apex of the complex while oxygen from reduced TcO core present at pyramid of the complex.

Faheemaskaririzvi@gmail.com