

P-483 Labeling of MDP with ^{188}Re for bone tumor therapyBarbezan, A.B.¹, Osso Jr., J.A.¹

Instituto de Pesquisas Energéticas e Nucleares, IPEN/CNEN, São Paulo, Brazil

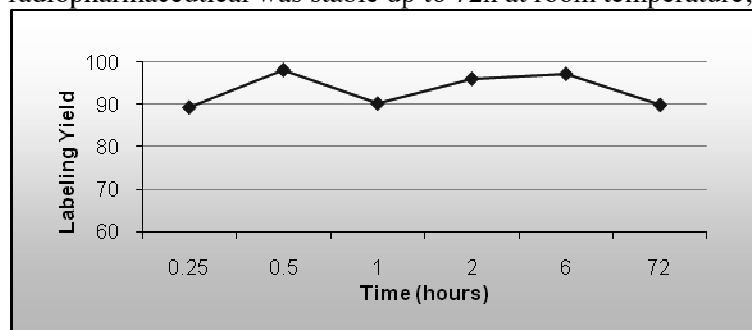
Objectives: The objective of this work was the optimization of the labeling of Sodium methylene diphosphonate - MDP with ^{188}Re .

Methods: ^{188}Re was obtained by eluting a ^{188}W generator from POLATOM. The labeling was performed at room temperature using MDP, SnCl_2 as reducing agent and ascorbic acid. The variables studied were: Mass of ligand (3, 6 e 10 mg), reducing agent mass (5, 7, 10 and 11 mg), ascorbic acid mass (1, 3, 5 and 6 mg) and time of reaction (15, 60, 120, 360 and 4320 minutes), that also reflected the stability of the radiopharmaceutical. The radiochemical control, that also measured the labeling efficiency, was evaluated by paper chromatography using Whatman 3MM paper and the solvents described in Table 1

Table 1. Radiochemical Quality Control

Radionuclide Specie	Acetone	0.9% NaCl
	Rf	Rf
MDP - ^{188}Re	0	1
$^{188}\text{ReO}_4^-$	1	1
$^{188}\text{ReO}_2$	0	0

Results: The best formulation was the following: MDP mass: 10 mg, ascorbic acid mass: 3 mg, SnCl_2 mass: 5 mg, time of reaction: 15 min, at room temperature. The ^{188}Re activity was 370 MBq in each experiment. The radiopharmaceutical was stable up to 72h at room temperature, as can be seen in Figure 1.

**Figure 1.** Stability of ^{188}Re -MDP

Conclusions: A very high labeling yield for ^{188}Re -MDP was achieved and the product showed to be stable at room temperature.

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References: METILENODIFOSFONATO DE SÓDIO - MDP. Dra Elaine Bortoleti de Araújo – CRF/SP 12527. Instituto de Pesquisas Energéticas e Nucleares, 2010. Medicine Bottle. HSIEH, B.-T. Comparison of various rhenium-188-labeled diphosphonates for the treatment of bone metastases. Nucl. Med. Biol., v. 26, p. 973-976, 1999.