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# Production of 45Ti by Proton Irradiation of 45Sc

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Objectives: 45Ti with a half-life of 3.08 h is a positron emitter radioisotope with a positron branching of 85% and also decays 15% by electron capture with E ( β+max ), 1.04MeV. The high β+ yield, short half-life and a stable daughter make 45Ti a suitable candidate for positron emission tomography (PET) imaging .This properties makes this radionuclide useful in the diagnosis of tumors.
Methods: In this study after considering the excitation functions for 45Sc(p,n)45Ti reaction using TALYS and ALICE/ASH codes and comparison with other experimental data's, 45Ti was produced by dint of pressing method with newly designed and manufactured shuttle and capsule. Essential target thickness and physical yield were calculated.
Results: new method for production and purification of 45Ti was evaluated. The scandium oxide target was irradiated at 20 μA current and 21 MeV proton beam energy for 1h.experimental yield of 403.3 MBq/μAh was reported
Key words: 45Ti, Radiochemical Separation, Pressing Method.

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