Design Collimator and Dosimetry of in Vitro and in Vivo Test Using MCNP-X Code

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Author Order	of
Accreditation	
Abstract	Studies were carried out to collimator modelling and dosimetry BNCT of in vitro and in vivo test using MCNP-X code. Collimator modelling performed to obtain neutron beam as required by the International Atomic Energy Agency (IAEA). Dosimetry calculations performed to obtain the results of the dose calculation (dosimetry) in the application of BNCT.Ãƒ Â,Ã,Â Collimator modelling and dosimetry simulations performed with MCNPX program. Neutron sources used for simulation, namely cyclotrons HM-30, energy 30 MeV, the current is 1.1 mA. Collimator modelling utilizes to program MCNPX covers cells target as beryllium, collimator wall (reflector), moderate, filter, gamma-ray shielding, and aperture. The simulation results of the modelling are ÃƒÂŽÃ,Â¦epi 1.02241x1010 n/cm2 s, Df/ÃƒÂŽÃ,Â¦epi 2.36487x10-11 Gy-cm2/n, DÃƒÂŽÃ,Â³/ÃƒÂŽÃ,Â¦epi 4.68416x10-12 Gy-cm2/n, ÃƒÂŽÃ,Â¦th/ÃƒÂŽÃ,Â¦epi 3.76285x10-01, J/ÃƒÂŽÃ,Â¦epi 8.37678x103. Based on the calculation of the dose rate that has been done, the result that the optimal dose rate at a depth of 1cm.
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