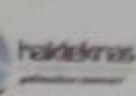
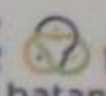




Riset Pro

RESEARCH & INNOVATION IN SCIENCE & TECHNOLOGY PROJECT



BOOK OF ABSTRACTS

3rd INTERNATIONAL SYMPOSIUM

The Application of Nuclear Technology as a Key Element to Promote Competitive National Industrial Products: Energy, Health, Agriculture, Industry and Environment

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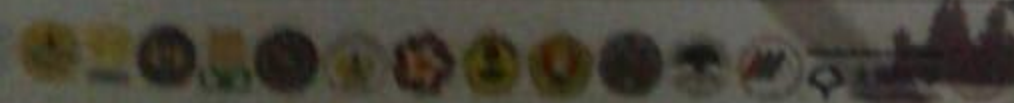
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(BNCT)

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ABSTRACT. BNCT is an ideal treatment in selectively killing cancer cells without damaging healthy cells around it. Boron Neutron Capture Therapy (BNCT) is a binary treatment modality involving the selective accumulation of ¹⁰B in cancer cells followed by irradiation with thermal and epithermal neutron beams. The purpose of this study was to calculate the dosage of BNCT in cancer cells using the Monte Carlo N Particle-X (MCNPX) simulation program. The simulation was performed by varying the concentration of boron compounds in the breast tissues model to obtain the most optimal dosimetry results. The simulation results in determining the maximum dose rate indicates that the most effective irradiation time is at 30 µg / gram boron concentration of tissues, ie 32.1. All doses of healthy tissue are below tolerance, indicating that the treatment of BNCT in breast cancer tissue is safe for healthy tissue around it.

Keywords: BNCT, Dosimetry, MCNPX, Breast Cancer

Brain Cancer Dose Evaluation of BNCT System Based on 300 keV MeV Cyclotron Using Monte Carlo N Particle X (MCNPX) Software

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ABSTRACT. Boron neutron capture therapy (BNCT) has been proposed as an alternative treatment when other therapy methods are not possible. Boron Neutron Capture Therapy (BNCT) is an advanced form of radiotherapy technique that is promising for cancer treatment, as it is ta