

## Efficient and cost effective cancer treatment model by using nuclear radiation

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In 21<sup>st</sup> century, the major biological problem in living organisms is cancer. Lots of people die due to this disease because of unavailability of proper remediation and the cost of the medicine. So, we are proposing minimum cost and efficient treatment model by the help of neutron radiation. In this model we are covering energy, radiation, efficiency, cost and availability as our main aspects. The role of radiation in cancer treatment is the destruction and controlling the growth of cancer cells. Here, the major nuclear phenomenon utilized is neutron capture reaction followed by the release of gamma rays which is the main component for the destruction of cancer cells. To reduce the effect of neutron radiation we inject boron enriched in the form of boron-10 ( $B^{10}$ ). This particular isotope of boron has got a very high neutron absorption cross-section leading to the excess neutron capture which may damage other non-harmful living cells of the living organism. Boron Neutron Collection Treatment (BNCT) is biochemical target radiotherapy based on atomic infections and decay reactions, which occurs when radioactive borides are irradiated with high linear term neutrons, element components, natural boron, which transmits energy to alpha particles and returns lithium 7. Clinical significance of BNCT is mainly focused on high-level glioma treatment, recurrent head and neck cancer and primary or metastatic melanoma. The source of BNCT neutron is currently limited to a specially modified nuclear reactor, so cost of material is high. That's why we are proposing nuclear waste can be converting by some nuclear reaction and it is the source of neutron. Boron-10 is high thermal neutron absorption cross section area so we can thermalize the neutron and then use for therapy. During this process lot of heat is generated in source container that we are using as an electricity generator which is useful in power cut off scenario. It became a cost effective cancer treatment model by using nuclear radiation.

### Biography

Dhakane Vishal Uttam has completed his Diploma in Chemistry and Bachelor of Technology in Chemical Engineering from VJTI Mumbai and Mumbai University, respectively. He is currently pursuing Post-graduate studies from Pandit Deendayal Petroleum University (PDPU), School of Nuclear Science and Technology, India and also working as Teaching Assistant of Chemistry in PDPU. He has published three papers in reputed journals.

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