

Conducting of the biological research at the accelerator-based epithermal neutron source

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At BINP (Novosibirsk, Russia) it is constructed and put into operation a neutron source based on a tandem accelerator with vacuum insulation and the generation of neutrons using ${}^7\text{Li}(p,n){}^7\text{Be}$ reaction [1]. The parameters of the generated neutron flux allow us to carry out *in vitro* and *in vivo* experiments for BNCT.

Spatial distributions of the dose rate of the generated neutrons and associated gamma-rays and their energy spectra are measured. This paper presents the results of these studies and discussion.

In vitro studies on radiation effect on cells were conducted. The cells were exposed to fast and slow neutrons separately. Some of cells have been previously enriched with boron using BPA. The obtained results demonstrate the possibility of using our accelerator for BNCT development.

[1] V. Aleinik, A. Burdakov, V. Davydenko, A. Ivanov, V. Kanygin, A. Kuznetsov, A. Makarov, I. Sorokin and S. Taskaev. *BINP accelerator based epithermal neutron source*. Proceedings of 14-th International Congress on Neutron Capture Therapy. October 25-29, 2010, Buenos Aires, Argentina, p.441-444.