

General Comments

The authors have taken in consideration the reviewers' comments and made some relevant corrections to the paper as requested, but the general structure of the manuscript need to be further improved to reach the required standard of this journal.

A revision by a native speaker would be appreciated as well checking the character format: still occasionally has some minor flaws.

The Discussion section is fairly presented, but there are significant weaknesses. Some parts concerning the general description of the biological test should be better detailed.

The authors should consider the following suggestions that could improve the manuscript.

Comments of the Reviewer in green

1. Introduction

Line 25

Reference 1. Цыб АФ, Ульяновко СЕ, Мардынский ЮС, Соколов ВА. Нейтроны в лечении злокачественных новообразований. Научно-методическое пособие. Обнинск: БИСТ; 2003. Russian.

The reference in this format is not readable for a reader non-Russian. This cannot be accepted in an international journal.

Line 30

In particular, neutron therapy would be prescribed for about 20% of oncologic patients provided that the selectivity of this method will be improved by 4-5 times [reference ? please support this statement]. This therapy is applied currently in about 10 medical centers in the world. Under correct patient choice and at the proper quality assurance (QA) procedures for patient dosimetry implemented at neutron therapy (see e.g. [2]) the therapy allows at least 20% enhancement of direct and long-term treatment results [3, Wambersie A, Menzel HG. Present status, trends and needs in fast neutron therapy. Bull Cancer Radiother. 1996;83(Supplement 1):68-77]

This is very old reference, what is reported is still controversial, that BNCT allows at least 20% enhancement of direct and long-term treatment results. The Author could refer to an updated revision of the state of the art.

Line 46

Some problems are poorly studied here. Such issues relate to dosage [?], obtained by the intermediate layers of organism when a deeply located tumor is under irradiation, in particular at short neutron pulses. It is also connected with the neutron scattering and penetration within organism at the combined irradiation modes (X/gamma-rays and neutron irradiation, fast/epithermal/thermal neutron irradiation, etc.) [1].

The meaning is uncertain to the reader, please reformulate or give a better explanation.

2.2 Materials

Please specify the enzyme, supplier (for each) and the reference method for biological assay if applied. Please carefully specify solely what has been presented in the paper and reported in this study: any other material/substances not analysed in the present paper should be removed in this section.

Line 144

“biological test objects” is used in the text simply instead “biological test”

2.3 Methodology

Special measures.. what does the Author means with “special”?

In a course of the experiments same objects were irradiated in different conditions “some object”? Please specify or reformulate.

3.3 Radioenzymology

Somatic and testicular forms of angiotensin converting enzyme (ACE) as well as some complicated [??? Please specify] compositions containing dissimilar concentrations of ACE (blood serum and seminal fluid) at variations of conditions of an enzyme existence and on parameters of powerful pulsed and stationary sources of irradiation were investigated. Besides the short-pulsed powerful irradiation influence on different types of plant peroxidases were examined.

These experiments in certain cases have shown appearance of deviations in catalytic activity (both activation and inactivation) at super-low doses of X-ray radiation (by 4...5 orders of magnitude lower compared with the case of the isotopes' sources) but at a very high dose power (by 8...9 orders of magnitude higher than in the case of irradiations by isotopes).

This section is very generic and it is unclear to the reader: what is the exact experimental set up and the biological model investigated? Please reformulate, specifying the experimental set up and/or giving appropriate references.

Line 318

In these our experiments .. English revise

Line 357 **Fig. 6.** Data presented in fig 6 have been obtained in the frame of the study of reported from other papers? Please specify making the required changes in the paper.

Line 412 As the bio-test objects we used enzymes of various types (like angiotensin converting enzyme, different plant peroxidases), serum, seminal fluid, yeasts, human lymphocytes, mice bone marrow, mice of line Black and F1 (CBA´C57B1), etc.). It can be stated that: Please report and discuss only the data obtained in the paper: which biological test and which type of enzyme have been analysed? Please reports these informations in a new table and please comment specifically each of results.

Line 530

18. Блохин МА, Швейцер ИГ. Рентгеноспектральный справочник. МОСКВА: “НАУКА”, Главная редакция физико-математической литературы; 1982. Russian.

The reference in this format is not readable for a non-Russian speaker! This cannot be accepted in an international journal.

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