

**STATE OXIDANT AND ANTIOXIDANT SYSTEMS IN ORGANS OF
RATS AFTER FRACTIONED X-RAY IRRADIATION**

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When animals were irradiated by small doses with some intervals the response of an organism to radiation activity was less pronounced than in single dose combined irradiation.

The mechanisms underlying the biological effects of ionizing irradiation(II) are manifested both at the molecular level and at the cell, tissue and organism level. Important role in biological reactions is played not only by physical processes that transfer energy of radiation of biological macromolecules, but also the radiation-chemical processes, radical formation and their interaction with biological macromolecules.

Thus, we can say that the biological response to II at the cellular level depends both on the damage of DNA molecules and on dysfunction of enzymes and on phospholipids comprising the biological membranes. Oxidative processes involving radicals and lipid radiotoksins take an important place in the violation of the stationary state of cells, tissues, organs and organism as a whole. In the formation of biological response to the action of II functional state of the cell, ratio of oxidant system (OS) and antioxidant system (AOS) have an importance meaning. To determine the radiation damage also used are radioprotektors applied both before and after irradiation. In this regard, the aim of our work has become a possibility to learn the influence of *Spirulina platensis* as a food additive in the food of rats, subjected to fractionated X-ray irradiation with total dose of 10 Gr.



We have used a strain *Spirulina platensis* 198B as a food additive. This strain is characterized by a high content of proteins (70 %) with a complete set of essential amino acids, 11 % lipids, 20 % carbohydrate, a complex of almost all vital vitamins a wide range of important micronutrients. Due to its universal composition the biomass of spirulina has antioxidant, immunomodulating and immunostimulating effects.

In the experiment white rats, which were divided into three groups, were used: 1st group - intact animals, 2nd group-irradiate animals who received 10 Gr during 5 days, 3rd group similarly irradiated as the 2nd group but with spirulina strain 198B up to 250 mg 1 kg body weight throughout the experiment (one week before irradiation, during irradiation and after irradiation). Animals were decapitated a week after irradiation. For researches used were: liver, kidney, heart, brain, spleen and blood. Such indicators were identified: malonic dialdehyde (MDA) as an indicator of lipid peroxidation (LPO), the content of reduced glutathione, the activity of glutathione reductase and glutathione peroxidase, as well as the activity of superoxidedismutase (SOD). The obtained experimental data were treated by variation statistics method.

The use of spirulina as a food additive had definite impact on the investigated factors both OS, and AOS. A tendency to a OS and AOS increasing. In conclusion, our experimental data show, that *Spirulina platensis* 198B has antioxidant activity.