

TITLE: Lipid peroxidation and antioxidant responses in zebrafish models after exposure to low doses of ionizing radiation

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OBJECTIVES:

The use of zebrafish – *Danio rerio* – has grown considerably, demonstrating the increasing interest to use this model in biomedical research, essentially because of the level of homology shared with the human genome, complemented by an easy and reasonably affordable practical side. This work aims to study the radiobiological effects of exposure to low doses of ionizing radiation.

METHODS:

A population of 120 adult zebrafishes has been used, with the animals divided in 4 groups of 30 each, with an equal number – 15 – of males and females in each group. “Control Group” was not submitted to irradiation, while remaining 3 groups were externally irradiated, respectively with 100, 500 and 1.000 mGy. Data was obtained from each group, with 5 males and 5 females sacrificed at 1, 4 and 7 days after the irradiation.

Catalase (CAT) is an antioxidant enzyme that catalyzes decomposition of H₂O₂ to water and oxygen. An increase in CAT activity reflects an increase in oxidative stress and it is measured by reading the absorbance.

Lipid peroxidation was assessed through the quantification of ThioBarbituric Acid Reactive Substances (TBARS) and measured by reading the absorbance.

RESULTS: CAT activity and TBARS amount changed over time. Results obtained suggest that females and males present distinct responses to radiation since there are differences at CAT activities as well as at lipid peroxidation level.

CONCLUSION: Results obtained so far, in this yet ongoing study, suggest a significant relation between dose of irradiation, catalase activity and amount of TBARS.



Foi decidido que não será apresentada a versão integral deste documento.

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