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EFFECTS OF PATHOGENIC OOMYCETES ON ATLANTIC SALMON EMBRYOS

Eglė Gadeikytė^{1,2}, Gintarė Sauliūtė¹, Arvydas Markuckas², Milda Stankevičiūtė¹

¹Nature Research Centre, Akademijos St. 2, LT-08412 Vilnius, Lithuania

²Vilnius University, Life Sciences Center, Saulėtekio av. 7, 10223 Vilnius, Lithuania
egle.gadeikyte@gmc.stud.vu.lt

Oomycetes, or water moulds, are fungal – like microorganisms that include many pathogens that cause devastating diseases in freshwater aquaculture and natural environment. Diseases caused by oomycetes may affect numerous fish species (especially salmonid), including fish eggs [1]. For this reason, that the oomycetes are among the most problematic group of disease-causing organisms in both agriculture and aquaculture, they represent a recurrent threat for global food security and results in major economic losses and serious damage to natural ecosystems [2]. At present, fish farmers are struggling to control this pathogen and currently there is still lack of information, how to prevent and treat oomycete-related diseases. Based on previous research a disease causes oxidative stress in naturally infected fish [3]. Thus, changes in antioxidant systems of aquatic organisms can serve as indicators for a variety of stressors exposures related to oxidative stress [3]. So, use of biomarkers helps to assess the negative effects of oxidative stress. In this study, as biomarkers were used enzymes, like catalase and glutathione S-transferase. Catalase (CAT) was one of the first enzymes proposed to be an effective biomarker of oxidative stress, which protects tissues against damage by hydrogen peroxide [4], and glutathione S-transferase (GST) – ideal organ damage indicator, also protects organisms from peroxidative damage, moreover this enzyme been used in detoxification of toxicants including pesticides, cyclic hydrocarbons, oil and other xenobiotics, because they help to eliminate the oxidative by-products [5].

The aim of this study was to evaluate the toxicity of oomycetes to *Salmo salar* L. embryos by evaluating changes in the activity of antioxidant enzymes - CAT and GST. The results of this study showed significant changes of CAT and GST activity in *S. salar* embryos, after exposure to different species of pathogenic oomycetes. Therefore, oxidative stress biomarkers are very useful in diseases ethology and environmental toxicological studies [1].

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