Influence of a trout farm on antioxidant defense in larvae of

The aim of this study was to establish the influence of a trout farm on the activity of enzymes superoxide dismutase (SOD) and glutathione peroxidase (GPx), and total glutathione concentration (GSH), in larvae of Ephemera danica, and on environmental parameters in the receiving watercourse. The investigations were carried out seasonally (April, July, and October of 2016 and January of 2017) at four localities (SK1–control, and SK2, SK3, and SK4–30 m, 330 m and 630 m below the fish farm, respectively) along the Skrapež River. Discharged water had the greatest effect on the concentrations of dissolved oxygen (DO), ammonium ions, nitrates (NO3–), and total phosphorus. In the case of SOD and GSH, seasonal changes were greater than longitudinal, with maximal values attained in spring and summer and minimal in autumn and winter. SOD showed the strongest correlation with DO, and GSH with total nitrogen. Activity of GPx demonstrated greater longitudinal variability with maximum at SK2 in all seasons and the strongest correlation with NO3–. The obtained results indicate that GPx activity was the most sensitive to the trout farm effects, while SOD and GSH were more influenced by natural seasonal changes of environmental parameters.

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Obtenir le document : EDP Sciences
Mots clés : oxidative stress, Ephemera danica, trout farm, stress oxydatif, élevage de truites
Date : 2018-12-05
Format : text/xml
Source : https://doi.org/10.1051/kmae/2018036
Langue : Anglais
Télécharger les documents : https://www.kmae-journal.org/10.1051/kmae/2018036/pdf
Permalien : https://www.documentation.eauetbiodiversite.fr/notice/influence-of-a-trout-farm-on-antioxidant-defense-in-larvae-of0