

**TU269 How common carp (*Cyprinus carpio*) avoid oxidative stress during an exposure to a sublethal tertiary (Cu, Cd and Zn) mixture**

M. Pillet, University of Antwerp / Department of Biology (SPHERE Research Group); G. Castaldo, S. DeWegheleire, University of Antwerp / Biology; L. Bervoets, R. Blust, G. De Boeck, University of Antwerp / Department of Biology (SPHERE Research Group). Aquatic environments are subjected to numerous anthropogenic stressors that are much more diverse and variable than those tested in laboratory conditions. So it is important to analyse the effects of metal mixtures to obtain a realistic understanding of the impact of pollution in such natural ecosystems. The impact of a one-week exposure to metal mixture containing copper (Cu), cadmium (Cd) and zinc (Zn) was evaluated in the common carp *Cyprinus carpio*. The concentrations of metals used in this study represent 10% of the 96 h LC<sub>50</sub> of each single metal exposure (Cu = 4.8 µg.L<sup>-1</sup>; Cd = 2.9 µg.L<sup>-1</sup> and Zn<sup>50</sup> = 206.8 µg.L<sup>-1</sup>). To evaluate the impact of mixture stress at different levels of oxidative processes and to apprehend their time course within one-week exposure, indicators of oxidative stress (malondialdehyde [MDA] level and xanthine oxidase [XO] activity), as well as activities and gene expression of key enzymes involved in antioxidant defense (superoxide dismutase [SOD], catalase [CAT], glutathione peroxidase [GPx], glutathione reductase [GR] and glutathione-S-transferase [GST]) were measured in gills and liver of *C. carpio*. In addition, the total antioxidative capacity (TAC) was quantified. No sign of oxidative stress was observed during the experiment, but CAT, GPx, GR and GST activities were significantly reduced in the liver after 7 days of exposure. This suggests a potential decrease of glutathione levels and risk of increased free radicals in case of longer exposure. In the gills, there were no major changes in the TAC or in the activities of antioxidant enzymes but the relative expression of the genes coding for CAT and GR were triggered, suggesting an effect on the transcription processes. These results prove the high tolerance of *C. carpio* to these levels of metal pollution, at least in this short-term exposure.