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***Heavy metal effects on the Lysosomal Membrane Stability and Respiratory Rate in Chinese Pond Mussel (*Anodonta woodiana*) under Ex situ Exposure***

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**Abstract.** The Chinese pond mussel (*Anodonta woodiana*) is a unionid mussel species that has recently been reported as being invasive worldwide. As a filter feeder, it is known to accumulate heavy metals, making the species useful for biomonitoring. However, the effects on some physiological functions of this species, after acute exposure to heavy metals, is still poorly studied. The current study aimed to investigate the lysosomal membrane stability in hemocytes of Chinese pond mussel (*Anodonta woodiana*) by applying the neutral red retention assay (NRRA), as well as changes in the respiratory rate under acute metal exposure. The mussels were treated with different concentrations of Ni and Pb in laboratory conditions for 72<sup>nd</sup> h. These metals are considered as priority substances according to Directive 2013/39/EU of the European parliament and the Council. The metal concentrations were prepared as 75, 50 and 25% of the maximum permissible levels set by law. After the 72<sup>nd</sup> h exposure to Ni and Pb the lysosomes retained the dye between 30 to 60 minutes in the mussels exposed to the higher concentrations. We registered a negative, statistically significant correlation between the metal concentrations and the average time the lysosomes retained the dye after the 72<sup>nd</sup> hour. The respiratory rate was measured at the 72<sup>nd</sup> hour and it increased in a dose-dependent