Stress reaction in crayfish: chlorides help to withstand stress in high nitrite concentration conditions – preliminary study

A non-invasive method of recording cardiac activity (heart rate – HR) and stress reaction (stress index – SI) was used to understand the immediate and ongoing stress reaction of crayfish to the chemical stimuli. This method detects changes in the shape and amplitude parameters of the response to the stress factors, which characterized the crayfish functional state. Experimental animals (Astacus leptodactylus) were divided to the two groups with (400 mg·L-1 Cl–) and without added chlorides and then exposed to a stepwise increased level of nitrite to the final (sublethal-lethal) concentration of 60 mg·L-1 N-NO\hbox{$_{2}^{-}$} within 24 hours. The course of crayfish reaction was evident and provided information about their reaction to the sublethal-lethal concentration over time. As expected, a less prominent stress reaction was detected in the group with chlorides. The non-invasive method successfully evaluated the sensing of chemical stimuli in water through HR and SI changes.

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