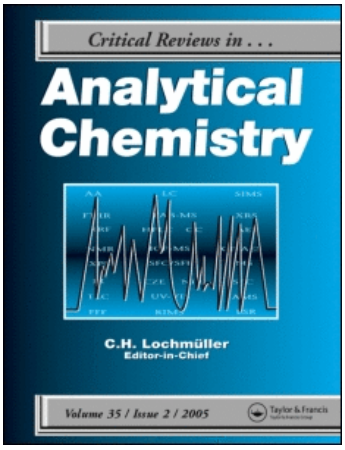

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THE EVALUATION OF EFFECT OF HEAVY METALS ON AQUATIC ORGANISMS

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THE EVALUATION OF EFFECT OF HEAVY METALS ON AQUATIC ORGANISMS

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Heavy metals (HM) are found to be the most common and resistant pollutants entering the inland waters of Lithuania. The aim of the present study was to determine the effect of HM (Cu, Zn, Ni, Cr, Fe) and their mixtures on morpho-physiological, genetic, behavioural indexes of aquatic organisms, estimating the most sensitive species to those pollutants at different stages of their development when varying HM proportions and their concentrations, exposition duration and physical-chemical water characteristics.

By use of acute lethality tests it was found that the resistance of aquatic organisms studied greatly depends on the kind of toxicant, copper being the most toxic one. HM in mixtures showed synergetic effect and that was independent of metal concentration and proportions.

It was found by complex tests that aquatic organisms are the most sensitive to HM effect in the early stages of development (fish roe, larvae, juvenile leeches). Under the effect of HM the number of spontaneous mutations in fish embryos increases, the growth rate decreases, and number of physiological indexes' changes (cardio-respiratory, developmental parameters, behavioural reactions).

Changes of morphological and physiological indexes in adult individuals of fish are also caused by HM (tissues somatic indexes, decrease of growth rate, changes in haematological and immune system indexes, social and adaptation behaviour).

The above indexes are greatly influenced by chemical and physical characteristics of water, exposition duration and HM concentration.

A fundamental complex research into the effect of HM on aquatic organisms can be used in solving practical problems of aquatic toxicology, in creating theoretical bases of biotesting, in estimating the toxicity of waters polluted with HM.