

Abstract

Nowadays, nanomaterials are broadly used for many purposes thanks to their unique properties. The production of nanoscale materials is growing rapidly. Consequently, it means a high probability of their release into the environment and there are concerns about their possible negative effects on organisms. Furthermore, the behaviour of nanomaterials might be strongly influenced by many factors and there are many different types of them, so there is still a big information gap in this field.

The aim of this work is to summarize basic facts about nanomaterials and their possible toxicity, especially to the fresh-water crustacean *Daphnia magna*. An impact of nanoscale zero-valent iron particles is tested on this species. This material is used for remediation so it is injected directly into the environment. Concentrations of $0,1 \text{ g}\cdot\text{l}^{-1}$, $0,5 \text{ g}\cdot\text{l}^{-1}$, $1 \text{ g}\cdot\text{l}^{-1}$ and $2,5 \text{ g}\cdot\text{l}^{-1}$ of two products with different surface modifications were tested. It was found that the toxicity depends on the type of stabilization. EC_{50} was not established for NANOFER 25S (with a special surface modification) due to the maximum immobilization rate of only 30 % for the concentrations tested. However, the EC_{50} value for NANOFER 25 (without the special surface modification) is $0,94 \text{ g}\cdot\text{l}^{-1}$. These results confirm that it is necessary to evaluate possible effects of every nanomaterial being commonly used.