

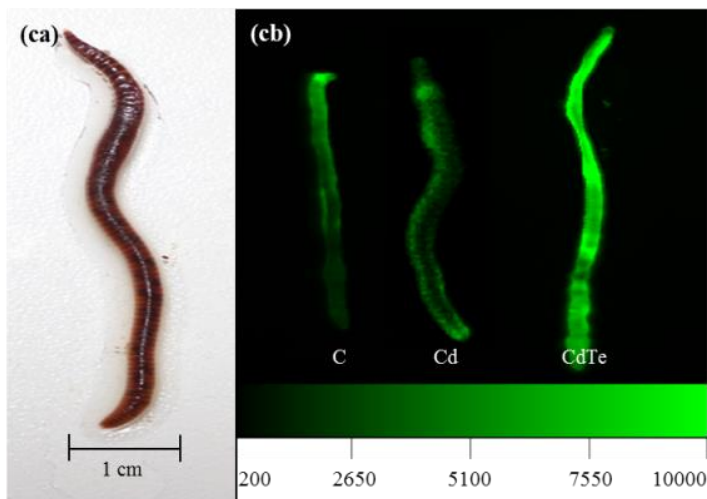
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Příprava nanočástic-kvantových teček v terestrických organismech

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Abstrakt

Biosynthesis is one of the new possibilities of nanoparticles preparation. Beside the new options of synthesis that is not demanding on the equipment or chemicals, its main advantages include biocompatibility. In addition, the ability of obtaining the raw material for such synthesis from the soil environment is beneficial and could be useful for remediation. However, the knowledge of mechanisms that enable the biosynthesis or effect on the bio-



synthesizing organisms is still insufficient. In this study, we evaluated the effect of quantum dots not only on a model organism of collembolans, but also on another soil organism - earthworm (*Eisenia fetida*) and in addition one widespread microorganism (*Escherichia coli*). $28EC_{50} 72.4 \mu\text{mol L}^{-1}$ was determined for collembolans. Our results suggest that the biosynthesis has significantly different effect on each of the organisms. The biosynthesis

of earthworms is its own protective mechanism however, in *E. coli*, it is probably a by-product of protective mechanisms. This follows from the results of the indicators of oxidative stress and antioxidant activity.

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