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REDUCTION OF PHYTOTOXICITY OF MEDIA WITH Pb^{2+} IONS USING THE CULTURE OF BACILLIBACTIN-PRODUCING BACTERIUM *Bacillus velezensis*

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Abstract

The use of plants and siderophores-producing microorganisms are the approaches to bioremediation of the environment polluted by heavy metals. The aim of this study was to evaluate the ability of bacterium *Bacillus velezensis* strain NUCCh C2b to reduce the toxicity of Pb^{2+} -containing solution. The phytotoxicity of Pb^{2+} solutions were evaluated by the biotesting methods with garden cress (seed germination energy, seed germination, biometric and morphometric indicators of seedlings) both in the presence of one toxicant and in a complex with the culture of bacillibactin-producing bacterium *B. velezensis* strain NUCCh C2b; phytotoxic indices were calculated. The significance and novelty of the obtained results lie in establishing reduction in the toxicity of aqueous lead salt solutions using the culture of the bacillibactin-producing bacterium *B. velezensis* strain NUCCh C2b, the list of bacterial species-bioremediation agents has been expanded. *B. velezensis* strain NUCCh C2b is promising for bioremediation of environments contaminated with lead, and can be effective at concentrations of Pb^{2+} up to 0.57 mg/L and in combination with stronger bioremediation agents.

Key words: bacillibactin, *Bacillus velezensis*, bioremediation, *Lepidium sativum*, Pb^{2+}

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