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ABOUT NEW APPROACHES FOR ENHANCING PHYTOREMEDIATION EFFECTIVENESS

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The complex technological approach to the fast removal of ecotoxics from ecosystems is a very urgent matter for all countries. The development of water remediation methods for the removal of chemical contaminants is a challenging problem. One of the methods to clean chemically polluted waters is using of algae (the so-called Phycoremediation). *Spirulina* (*Spirulina platensis*) should have prospects for phytoremediation of waters polluted by different toxic compounds. Evaluation of ecological potential of *Spirulina*, in particular, its tolerance and detoxication ability towards organic ecotoxics and heavy metals, is the novelty in sphere of researches in xenobiochemistry.

Recently intensive study of contaminated areas has revealed special property of bacteria living in these areas. The processes of microorganism's biostabilization of soluble forms of hazardous pollutants can be used for bioremediation of soils, contaminated by oil, Pesticides, heavy metals and radionuclides. Monitoring of bacterial consortiums in contaminated regions will enable to assess in advance the extent of native bioremediation and accordingly suggest a strategy of detoxification. For this purpose we have developed the phylogenetic oligonucleotide low-density biochip based on the 16SrRNA genes sequences.

The goal of presented work is to develop of quick response strategy and effective flexible technology of targeted toxicants removal from polluted water and soils. The approach is based on joint action of microorganism and plants with high detoxification potential, using natural minerals with function of a sorbent is to uptake and to trap pollutants emission in the environment and biochips – tool for bioaugmentation of different type of toxicants.

Biography

Tamar Varazi's qualification - chemist - completed at Tbilisi State University of Georgia. She received her scientific degree – PhD in Biochemistry at the Institute of Biochemistry and Biotechnology of Georgia. Current occupation is Senior scientist and Full Professor of Georgian Agricultural University, Durmishidze Institute of Biochemistry and Biotechnology, Department of Biological Oxidation. She has scientific experiences in Investigation of biochemical principles of phytoremediation of polluted environment. She is a manager, coordinator and researcher of many scientific and applied international projects. She has highly developed presentation/teaching skills. Her publications includes 3 Monographs and 47 articles in international and local scientific journals.

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