

BIOREMEDIATION OF ENVIRONMENTAL ENDOCRINE DISRUPTORS (ESPECIALLY PHTHALATES)

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Abstract

Endocrine disruptors (ED) are a miscellaneous group of chemical compounds (DDT, PCB's, Bisphenol A, PBDE's, and especially a variety of phthalates) which act like hormones in the endocrine system and disrupt the physiological function of hormones¹. Demand on the production of above mentioned heterogeneous group of compounds lies in their function in industrial production of plastics, artificial rubber, herbicide, insecticide, and electric appliances. There is also a global environmental concern due to the enormous production of them annually. Contaminated area of ED can be treated by physical and chemical methods. However, the potential of microbial strains may be also applied in order to remove ED from the environment or decrease their concentration on the satiable level.

In this study, research and development of biological method for phthalate bioremediation is described. Two strains were isolated from waste water which comes from the company Granitol, a.s. (Moravský Beroun, Czech Republic). These microorganisms were identified as members of the genera *Rhodococcus* and *Kocuria*. Contribution explains the complexity of R&D in bioremediation on the case study connected with the requirement to construct a biological method for ED removing. Many experiments have been carried out since both strains were selected from the contaminated matrix. Recently, the extensive source of information about their metabolism and other physiological and ecological aspects has been serving as a tool of particular relevance by force of them the clean-up processes can be managed successfully.

Generally, the contribution explores the principles of biodegradation in ED and characterizes the environmental factors influencing the degradation process in contaminated environmental matrix from the practical point of view. The fate of ED in environment has to be solved as quickly as possible because consequences of the inactivity could have devastating effect on the whole biosphere.

¹ Definition of WHO (www.who.int April, 17th 2009)