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BACSIN FP7 (TARGETED APPLICATIONS OF BACTERIAL STRAINS FOR POLLUTANT BIOREMEDIATION)

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Abstract

Application of preselected bacterial strains for targeted remediation of environmental pollutants has been largely frustrated by the lack of reproducible success. Most likely, this was due to insufficient knowledge on the behaviour of various bacterial strains in the environment, and, in particular, the influence of diverse stresses on the catabolic activity of the bacteria. To overcome this knowledge gap, the BACSIN consortium started an ambitious program to study the catabolic and stress behaviour of five selected bacterial strains with different catabolic potential and environmental application, in order the find the key factors which determine survival and activity. The strains which the program focuses on include *Pseudomonas putida*, *Desulfitobacterium hafniensis, Sphingomonas wittichi, Arthrobacter chlorophenolicus* and *Alcanivorax borkumensis*. The program combines research at different levels of complexity: from genome-wide transcriptome analysis, genomics and genetics on pure isolates to their applications in the environment, in soils, on plant roots, plant leaves, or in marine systems. The consortium also addresses specific questions of formulation of biodegradation strains for optimal application under field condition. We will show various selected examples of our work in the different areas.