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**PREDICTIVE EVALUATION OF BIOREMEDIATION POTENTIAL
OF CHLORINATED SOLVENTS CONTAMINATED SITES**

B. Matturro, S. Rossetti

IRSA-CNR, Via Salaria km 29.300, Monterotondo (RM) 00015, Italy

Abstract

The extent of chlorinated solvents biodegradation in contaminated aquifers is critically dependent upon several factors, namely, the presence of contaminant degrading bacteria and the creation of optimal environmental conditions to stimulate biodegradative activity. The early estimation of the occurrence and abundance of contaminant key-degrading bacteria at field scale can therefore strongly assist the definition of the bioremediation potential as well as the decision making process prior to initiating bioremediation activities and the detailed site characterization.

In this study, a wide screening was made on groundwater samples taken from several Italian chlorinated solvents contaminated sites to estimate the dechlorinators cell densities and activity. In particular, the analysis was made by means of a combination of biomolecular tools including *in situ* detection methods (CARD-FISH) for the accurate estimation of dechlorinators abundances and RT-qPCR for the expression analysis of reductive dehalogenase.

Here, the outputs obtained by the application of the biomolecular tools were further compared with the results obtained by conventional treatability approach (i.e. microcosm study).
