

# DIVERSITY OF CULTIVABLE AEROBIC MICROFLORA IN FOUR DEEP ANOXIC HYPERSALINE BASINS IN THE EASTERN MEDITERRANEAN SEA

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Four Deep Hypersaline Anoxic Basins (DHABs) in the Eastern Mediterranean Sea, Bannock, Discovery, L'Atalante and Urania, are characterised by high pressure, absence of oxygen and contain brines with high saline concentrations. DHABs are between the most extreme marine environments on earth, and could be an interesting habitat for new microorganisms having novel capabilities with biotechnological potential.

During the R/V Urania cruise in August 2001, immediately after their recovery, samples from seawater-brine interface, brines, brine-sediment interface and sediments under brines have been inoculated directly on board on different liquid media, specific for the growth of halophilic/halotolerant heterotrophic or oligotrophic bacteria, and oil-degrading microorganisms. From the obtained mixed culture, pure strains exhibiting diverse colony and cell morphology were isolated on solid syntethic media, establishing a collection of 94 aerobic isolates. Intergenic Transcribed Spacer PCR (ITS-PCR) has been applied to the DNA extracted from the isolates, in order to characterise the strains and to group them in phylogenetically homogeneous groups. The fingerprints showed a high diversity among the isolates which have been divided in 47 groups according to the ITS patterns. 16S rDNA partial sequencing of one isolate for each ITS group could lead us to identify its phylogenetic affiliation by comparing its sequence with public sequence databases. According to the results, all the strains were attributed to *Eubacteria*, and most of them had high homology values with described strains isolated from hypersaline or marine environments. Most of the strains isolated from sediments or brine-sediments interface are *Bacillaceae*, while the majority of isolates from brines or seawater-brine interface belong to the  $\gamma$ -proteobacteria group. \*BIODEEP is FP5 EC Project (Contract EVK3-2000-22057).

<http://www.geo.unimib.it/BioDeep/Project.html>