

## **Novel microorganisms from deep-sea hypersaline anoxic basins of the Eastern Mediterranean Sea**

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Brines, interfaces and sediments of four deep-sea hypersaline anoxic basins (DHABs), located at the floor of the Eastern Mediterranean Sea at approximately 3500 m below sea level, were sampled, and the structure and dynamics of the microbial communities investigated by t-RFLP of 16S rDNA. The resulting t-RFLP fingerprints indicated that brines of the DHABs are isolated environments with a distinctive microbial community, every basin having a unique composition. The 1.5-metre thick interface of one of the basins was examined with fine spatial resolution. Microbial community fingerprints revealed that the interface is also inhabited by a distinctive microbial community, different from the overlying seawater as well as from the underlying brine, changing with rising salinity.

Cultivation with a suite of enrichment media resulted in a wide variety of extremely halophilic and marine anaerobic and aerobic isolates, many of which were previously unknown. From sediments mainly spore-forming organisms were isolated, whereas from interfaces non-sporeformers were predominant. The extremely halophilic anaerobic organisms comprised Gram-positives (*Haloanaerobiaceae*) and Archaea (methanogens and surprisingly, an anaerobic haloarchaeon). Three anaerobic marine organisms from an interface, one epsilon-Proteobacterium, and two that may represent a new lineage within the CFB-group, were characterised in greater detail.