

## **Comparison of microbial diversity in four deep-sea anoxic hypersaline basins**

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At the bottom of the eastern Mediterranean Sea numerous basins filled with highly saline waters were discovered. The waters of these so-called brine lakes do not mix with overlying seawater and are therefore anoxic and often also sulfidic. In summer 2001 the brines, sediments and the seawater-brine interface of the L'Atalante, Discovery, Urania and Bannock basin were sampled during a cruise with the RV Urania. For the first time sampling of the seawater-brine interface was monitored by a mobile docking station equipped with cameras and light to ensure that the samples were taken direct from the interface. From all samples DNA was extracted and the 16S rRNA genes amplified prior to community structure profiling using eubacterial and archaeal primers. The microbial diversity of the brines, interfaces and sediments was then analysed by t-RFLP profiling and compared to the microbial communities of surrounding oxic seawater and sediments. Simultaneously anoxic enrichment cultures for sulfate-reducing, methanogenic and fermenting bacteria were inoculated, as well as oxic enrichment cultures for heterotrophic and sulfur-oxidizing bacteria and agar plates for heterotrophic bacteria. The cultivation experiments resulted in numerous halophilic anaerobic and aerobic isolates. The relevance of these isolates in the natural microbial community is discussed considering their physiological properties and the comparison of the t-RFLP profiles of the enrichment cultures with those of the natural communities.

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