

Active or not? What microbial assemblages say about pockmarks located at Estremadura Spur (NE Atlantic)

Clara F. Rodrigues^{1*}, Vitor Magalhães², Marina Ribeiro da Cunha¹

1. Departamento de Biologia & CESAM, Universidade de Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal
2. Portuguese Institute for Sea and Atmosphere (IPMA), Marine Geology and Georesources Division (DivGM), Rua C ao Aeroporto, 1749-077 Lisboa, Portugal

*clara.rodrigues@ua.pt

Bacteria are important components of marine ecosystems and play a critical role in the biogeochemical cycles. Although ubiquitous and abundant in marine ecosystems, little is known about their diversity and composition, which is usually affected by several environmental parameters. Due to their abundance and distribution, which includes shallow-water locations, the contribution of pockmarks to global methane and hydrocarbon release could be massive. Microbial assemblages associated with pockmarks are known to be different between active and inactive sites. In this study, the microbial assemblages associated with several pockmarks located at the outer shelf of the Estremadura Spur were revealed using a next-generation sequencing of the bacterial/archaeal 16S rRNA. The sampled stations show a similar community structure for the most abundant phyla. OTUs encompass 59 bacterial and three archaeal phyla. Within Bacteria, Proteobacteria with 62.6% was the dominant phylum followed by Actinobacteria (7.8%), Acidobacteria (7.7%), Bacteroidetes (4.5%) and Gemmatimonadetes (2.8%). These groups are known to dominate marine sediments and their diversity was comparable to other studies. The studied microbial assemblages also comprised several phylotypes associated with the cycling of sulfur and nitrate compounds, as well as numerous known hydrocarbon degraders emphasizing its importance for the ecosystem functioning.

Keywords: Pockmarks, bacteria, diversity, function

Short description: study of the microbial communities associated with several pockmarks located at the outer shelf of the Estremadura Spur