

RAPID FIRE PRESENTATION

RESILIENCE TO EXPOSURE EXPERIMENTS BY *SALINISPHAERA SHABANENSIS*: A NEW POLYEXTREMOPHILIC MODEL ORGANISM FOR ASTROBIOLOGY

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The deep-sea anoxic brines of the Red Sea include some of the most extreme locations on Earth (1). Their unique combination of high salinity, high-pressure, anoxia, and varying levels of hydrothermal input make them a valuable source of new polyextremophilic microbes and for exploring the limits of life. They have recently been proposed as relevant terrestrial analogues and flagged for future Astrobiological-based research (2). Among these proposals, exposure experiments with representatives of new taxa was seen as one of the top priorities. Current knowledge on the capability of (facultative) anaerobic microbes to withstand extraterrestrial conditions is still very sparse and is one of the main goals of the project MEXEM (Mars EXposed Extremophiles Mixture). Here we report the results of exposure experiments performed with *Salinisphaera shabanensis*, a facultative anaerobic, halophilic bacterium isolated from one of the Red Sea brines (3). Our results show that this bacterium is facultative anaerobic, radiation tolerant and can survive long periods of desiccation, making it a promising new model organism for Astrobiology. Comparative studies with other species within this genus (including thermophilic, alkaliphilic, and non-extremophilic ones) should prove particularly insightful in the near future.

References: (1) Antunes, A., Ngugi, D. K., & Stingl, U. (2011). *Environmental Microbiology Reports*, 3(4), 416-433. (2) Antunes, A., Olsson-Francis, K., & McGenity, T. J. (2020). *Current Issues in Molecular Biology*, 38, 123. (3) Antunes, A., Eder, W., Fareleira, P., Santos, H., Huber, R. (2003). *Extremophiles*, 7(1), 29-34.