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ANTARCTIC COLD DESERT HYPOLITHS - ASTROBIOLOGICAL MODELS OF CRYPTIC LIFE

Abstract

The cold deserts of the East Antarctic McMurdo Dry Valleys are home to a variety of cryptic microbial communities. Such communities are exposed to a variety of 'extreme' conditions, including wide temperature fluctuations (from +20 to -50degC), severe desiccation, long periods of darkness and habitual oligotrophy. Endolithic, casmolithic and hypolithic communities, typically associated with different geological structures, are valid models for understanding the adaptation of organisms to environmental extremes and as targets for astrobiological exploration. Here we explore the microenvironmental and biological characteristics of Antarctic Dry Valley hypoliths, with particular emphasis on the role of different environmental parameters in driving the development and survival of these microbial communities.