

SPRINGER BRIEFS IN MICROBIOLOGY

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Cave
Microbiomes: A
Novel Resource
for Drug
Discovery

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Book Chapter:

Microbial Ecology: Caves as an Extreme Habitat

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Abstract

When you enter a cave, as a human, you are immediately struck by what an alien environment you have entered, as the light fades, and cool, moist air surrounds you. Using artificial light to illuminate your journey through this rock dominated environment, you may think that nothing lives here, but biologists and microbiologists have been discovering a wealth of life in these rock chambers beneath the Earth's surface. And, now, a new revolution is taking place in how we view caves—scientists are discovering that these environments are home to organisms that produce secondary metabolites that may be useful to humans. But, what shapes this production and the microorganisms that produce these compounds? That is the focus of this chapter. We'll start with some background on caves in general, move to the abiotic factors that characterize caves, provide selective pressures for microbial evolution, and then review what energy sources fuel microbial growth and existence in caves, look at why caves make such ideal laboratories, and end with the significance of studying microbial life in caves, including secondary metabolite production, geomicrobiology, and relevance to life detection on extraterrestrial bodies.

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