

Extreme Environment

First Online: 05 May 2015

DOI: https://doi.org/10.1007/978-3-642-27833-4_566-2

Definition

An extreme [environment](#) is a habitat characterized by harsh environmental conditions, beyond the optimal range for the development of humans, for example, pH 2 or 11, $-20\text{ }^{\circ}\text{C}$ or $113\text{ }^{\circ}\text{C}$, saturating salt concentrations, high radiation, and 200 bars of pressure, among others. Basically, these are all inhospitable conditions for life. By definition, the organisms that are able to live in extreme environments are known as [extremophiles](#). Not so long ago it was thought that life could not occur under extreme conditions. In the 1960s, Professor Thomas D. Brock, from Wisconsin-Madison University, isolated and described the first organisms from Yellowstone National Park, USA. This organism, *Thermus aquaticus*, is capable of growing at temperatures higher than $70\text{ }^{\circ}\text{C}$. Its DNA polymerase has been widely applied in molecular biology as it is the base of the polymerase chain reaction (PCR) based on the thermophilic properties of the microorganism that produces...

Keywords

Extremophiles

References and Further Reading

1. Amaral-Zettler L, Gómez F, Zettler E, Keenan BG, Amils R, Sogin M (2002) Eukaryotic diversity in Spain's river of fire. *Nature* 417:137. doi:10.1038/417137a [ADSCrossRefGoogle Scholar](#)
2. Karl DM, Bird DF, Björkman K, Houlihan T, Shackelford R, Tupas L (1999) Microorganisms in the Accreted Ice of Lake Vostok, Antarctica. *Science* 286(5447):2144–2147. doi:10.1126/science.286.5447.2144 [CrossRefGoogle Scholar](#)
3. Rothschild LJ, Mancinelli RL (2001) Life in extreme environments. *Nature* 409:1092–1101. doi:10.1038/35059215 [ADSCrossRefGoogle Scholar](#)
4. Wharton DA (2002) Life at the limits: organisms in extreme environments. Cambridge University Press, Cambridge. ISBN 0521782120 [CrossRefGoogle Scholar](#)

How to cite

Cite this entry as:

Gomez F. (2014) Extreme Environment. In: Amils R. et al. (eds) Encyclopedia of Astrobiology. Springer, Berlin, Heidelberg

https://link.springer.com/referenceworkentry/10.1007%2F978-3-642-27833-4_566-2#howtocite