

Biomimicry: Harvesting desert fog

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Biomimetics or biomimicry is the imitation of natural biological processes or designs in engineering. It seeks inspiration from nature and several other natural systems. Biomimicry is applied in many fields. Due to the complexity and diversity of biological systems, the number of features that might be imitated is large. Fog collectors inspired by a darkling beetle is one excellent example of biomimicry. This small black bug, known as the *Stenocara* beetle, lives in a harsh, dry environment. Moreover, it is able to survive in the desert area because of the unique design of its shell. The beetle's back is a hardened shell covered with small and smooth grooves or bumps, where the fog condenses and accumulates. This beetle faces the back part of its body to foggy winds to collect water. The shell is made out of slick, Teflon-like wax, so that water easily flows off its body and into its mouth. Inspired by this, scientists have come up with creative ways of collecting water from desert fog to provide relief to people living in dry regions. One fantastic invention inspired by the darkling beetle is the dew bank bottle. This dome-shaped bottle is made up of stainless steel as it is cold and resembles the beetle's body. During nights in the desert, the bottle gets colder than air and the water droplets condense on the surface. This then gets collected into the bottle through small openings to avoid contamination. Therefore, biomimetics can be used to find creative solutions to challenging problems.

Keywords: Stenocara, Fog, Dew bank bottle, Biomimicry, Darkling beetle, Teflon

Citation:

Kala NG. Biomimicry: Harvesting desert fog. The Torch. 2022. 3(16). Available from:
<https://www.styvalley.com/pub/magazines/torch/read/biomimicry-harvesting-desert-fog>.