A 60 SECOND GUIDE TO . . .

Plant Adaptations (Extreme Hot)

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Definition

Adaptations are features and characteristics of an organism that help it to survive in its environment.

Types of Adaptation

In desert regions plant species have to adapt to some of the most extreme conditions on Earth. In these conditions, succulents (fleshy plants that retain water) have successfully adapted to survive the extremes. Unlike animals, the majority of plant species do not have a way by which they can move when their environment dramatically changes. Arguably this means that the adaptations that develop as a response to changes in the organism's habitat are vital for survival.

Characteristics of an extreme hot environment

- Very hot (43-49°C maximums) and very dry conditions.
- Tend to be found at low altitudes and on valley floors.
- Predominantly found between the Tropics, as energy from the sun is more concentrated there.
- The energy of the sun rapidly dries out the soil.
- High pressure, results in little or no clouds and very low precipitation. Annual rain fall averages at less than 250mm per year.
- Higher levels of variation in the diurnal conditions (hot in the day time and cold at night).

Examples of adaptations to extreme hot environments

Saguaro Cactus

Barrel Cactus

Photo source: Al_HikesAZ / Kevin Lynch

Description	Explanation
Water stores found in stems, leaves, roots and fruits	Water is readily available in extreme drought periods
Long root systems spread widely and at a shallow depth	When rainfall does occur, the plant is in the best position to take it up quickly
Spines or small leaves	Prevents animals from eating the organism and reduces the level of water loss through transpiration
Some species flower during night time hours	Ensures pollination by attracting insects that are active during cooler times
Waxy leaves covered in small hairs	Prevents water being lost through transpiration by trapping the water particles as well as shading the organism from the suns rays
Varied germination and dormancy times	Allows for reproduction to be possible in a small favourable climatic window of time