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News & Comments

An Altitude Study Explains How Plants Can Survive

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Plants sense the oxygen levels in the air around them and adapt to that environment, scientists found.

The rate of alpine species and crops is declining at the altitude. Scientists from Spain and Ecuador collaborated to identify the mechanism by which plants can sense atmospheric oxygen levels to understand how plants survive at high altitudes. As the altitude increases, the amount of oxygen reduces.

For this, they compared plants at both high and low altitudes. They found that Chlorophyll synthesis can be regulated by oxygen-sensing, allowing plants to balance the level of a toxic chemical with oxygen levels.

It may be possible to develop approaches to help plant breeders enhance crops' ability to grow at higher altitudes based on our new understanding of the genetic change plants undergo at altitudes.

The study showed that altitude perception is determined by atmospheric oxygen levels. Based on the results of the study, plant species differ in their ability to adapt to absolute altitude using oxygen-sensing control of chlorophyll synthesis as well as hypoxia gene expression. Having shown that this mechanism works in diverse species paves the way for a new paradigm in plant ecology

KEYWORDS

plant ecology, abiotic, natural variation in plants, plants, molecular biology, plant signaling.