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From: University of Würzburg via EurekaAlert!
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How plants sense electric fields

The cells of plants, animals and humans all use electrical signals to communicate with each other. Nerve cells use them to activated muscles. But leaves, too, send electrical signals to other parts of the plant, for example, when they were injured and are threatened by hungry insects.

"We have been asking ourselves for many years what molecular components plants use to exchange information among each other and how they sense the changes in electric voltage," says Professor Rainer Hedrich, Head of the Chair for Molecular Plant Physiology and Biophysics at the University of Würzburg.

Results published in Plant Biology

This question has been intriguing Hedrich since the mid 1980s when he was still a postdoc in the laboratory of Erwin Neher at the Max Planck Institute in Göttingen. "Back then, we used the patch clamp technique to make the first-time discovery of an ion channel in plants which is activated by calcium ions and an electric field." In 2005, other scientists then found the gene underlying this ion channel (name: TCP1). And now it has been Hedrich's team again that has identified that part of the channel which functions as a sensor for electric voltage and activates the channel.

Their detailed findings are published in the journal Plant Biology. Having received attention from the scientific world, the article has been recommended by the "Opens external link in new windowFaculty of 1000" in the meantime. The renowned platform, which evaluates scientific publications, is operated by worldwide leaders in biology and medicine.

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