

PRESS RELEASE FROM *THE EMBO JOURNAL*

Sowing seed on salty ground

Scientists have discovered a gene that allows plants to grow better in low nutrient conditions and even enhance their growth through sodium uptake, according to a report published online this week in *The EMBO Journal*.

Salty soil caused by irrigation practices in arid regions has become a major agricultural problem – not only in India, China and African countries, but also around the Mediterranean and in dry regions of the USA, such as California. This is only expected to get worse in forthcoming years, as climate change leads to desertification.

Julian Schroeder and coworkers investigated a sodium transporter called OsHKT2;1 in the roots of rice plants. Their results provide evidence that this transporter has capabilities previously thought to exist but not genetically validated in plants before. Under salt stress, when sodium levels are too high, OsHKT2;1 transport is quickly shut off, protecting the plant from accumulating too much sodium before it can become toxic.

In addition, the authors found that sodium can also have beneficial effects under nutrient poor conditions. On soils where little nutritional potassium is available, a common problem after many years of agricultural production, plants can take up sodium through the OsHKT2;1 transporter to replace some of the functions of potassium and actually enhance growth. This improvement of our understanding of how plants regulate salt uptake in their roots may help to eventually find a solution to reducing the impact of soil salinity on agricultural productivity.

Rice OsHKT2;1 transporter mediates large Na⁺ influx component into K⁺-starved roots for growth

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10.1038/sj.emboj.7601732

<http://www.nature.com/emboj/journal/vaop/ncurrent/abs/7601732a.html>

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