# Salt-tolerant gene found in simple plant nothing to sneeze at

April 7 2008

Whether a plant withers unproductively or thrives in salty conditions may now be better understood by biologists. The cellular mechanism that controls salt tolerance has been found in the arabidopsis plant by a Texas AgriLife Research scientist collaborating with an international team.

Complex-N-glycan, a carbohydrate linked to a protein in plant cells, was previously thought to have no helpful function for plant growth and to cause certain allergies in humans, according to Dr. Hisashi Koiwa, lead author of the study in this week's *Proceedings of the National Academy of Science*.

"This gene has been considered non-essential or even a nuisance," Koiwa said. "People thought it was an allergen and couldn't find anything good it was doing in plants. So, it was thought of as not necessary for the growth or development of a plant."

However, the team discovered that this carbohydrate may, in fact, be responsible for a plants' ability to contend with salt water.

The team's finding "significantly clarifies" the role of the gene and could lead to the development of food crops and other plants capable of producing well in areas with salty water, according to the science academy's journal reviewers.

Almost one-third of nation's irrigated land and half of the world's land is salt-affected, according to the U.S. Agriculture Department's Agriculture

Research Service. Salt left in the soil after the water evaporates, the research service notes, means plants don't grow as well and, therefore, yield less.

The study used arabidopsis, a plant commonly used in labs because it grows quickly and has a relatively simple, well-known genome.

The researchers applied salt to the growing plants and then examined sick plants, or those that appeared salt sensitive.

"We had to study the diseased status of the plant to understand its health," Koiwa said. "We looked for sick plants in the lab to find out why they were that way."v

He said the finding may help plant breeders look for this gene as they cross plants in order to develop varieties less affected by salt.

Source: Texas A&M University