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ENHANCED SALT TOLERANCE OF TRANSGENIC PEANUT OVEREXPRESSING PLASMA MEMBRANE SODIUM PROTON ANTIPORTER LIKE PROTEIN

A Roja Rani, Venkatesh K and Amareshwari P
Osmania University, India

Peanut (*Arachishypogaea L.*) is an important oil-yielding cash crop of the world. It is a rich source of edible oil, proteins and also plays a vital role in oilseed economy of India. The crop frequently encounters soil salinity conditions that affect the growth and productivity. Salinity is one of the major complex abiotic stresses that affect seedling, seed quality, yield, vegetative and reproductive growth in peanut. A sodium-proton antiporter plays an important role in plant salt tolerance mechanism. In our study, sodium proton antiporter like protein (NHXLP) gene was introduced in peanut variety to enhance salt tolerance. Transgenic peanut plants with the NHXLP gene were developed using *Agrobacterium*-mediated genetic transformation. Molecular analysis confirmed the stable integration and expression of NHXLP gene in the peanut genome. Biochemical and physiological analysis of transgenic lines exhibited higher chlorophyll, potassium ion content, proline, lower sodium ion content and higher biomass and yield respectively. Overall, our result indicates that the transgenic peanut with NHXLP gene improved the salt tolerance compared to the untransformed control plants. Genetically engineered salinity tolerant peanut plants could provide an avenue to the restoration of saline farmlands lost to agriculture and features the potential of NHXLP gene for biotechnological applications.

anupallirr@gmail.com