

RESEARCH ARTICLE

Screening of T₃ generation *NHX1* transgenic rice lines for salt tolerance

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SUMMARY

Rice is the most salt sensitive crop among cereals. Salinity is one of the major abiotic stress threatening the agricultural productivity worldwide. Salinity reduces 80 per cent of rice growth. To cope up with salinity stress, plants have adapted certain mechanisms to maintain growth and productivity. If salt tolerance is enhanced in rice, that reduction in growth and yield is only 30-40 per cent instead of 80 per cent, it would greatly benefit rice productivity in saline areas. Such salt tolerant rice transgenic plants were developed by transferring *NHX1* gene (Sodium proton antiporter). In the present study screening of T₃ transgenic rice lines was done. In plants *pgNHX1* gene catalyzes compartmentation of Na⁺ into vacuoles for maintenance of a low Na⁺ concentration in cytosol. Screening was done by stringent salt screening test at seed level and leaf senescence bioassay at plant level. At seed level, root and shoot growth was used as selection criterion. In transgenic plants shown root and shoot length of 24.1±3.3 and 19.7±3.2, respectively and control shown 4.0±1.8 and 6.0±0.8, respectively. At plant level, extent of chlorosis was used as selection criteria. Some of the transgenics showed significantly lesser chlorotic symptoms compared to wild type.

Key Words : Leaf senescence bioassay, *NHX1*, SSST

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