

Evaluation of some traditional rice cultivars for salinity tolerance in a Yoshida solution

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Salt stress is a major constraint which limits rice production. In the present study, 20 traditional rice cultivars were studied for salinity tolerance at the seedling stage in a hydroponic system. The experiment was carried out according to the completely randomized block design with four replicates and 10 plants were included in each replicate. Dormancy broken, surface sterilized rice seeds were germinated in distilled water for three days. After three days germinated seeds were transferred to saline solution with electrical conductivity 6 dS/m which was prepared by adding NaCl to Yoshida solution. After three days, EC level was increased up to 12 dS/m in the Yoshida solution. Nutrient solution was renewed in two day interval. Seedlings were kept in the same conditions for 21 days. Green plant height, root length and survival percentage of seedlings were evaluated on the 21st day. Root dry weight and shoot dry weight were evaluated at the end of the experiment after keeping materials at 70 °C for 7 days. Data analysis was done using ANOVA with Statistical Analysis System and Duncan multiple range test. *Moddaikaruppan*, *Galpa wee*, *Heenati-309*, *Handiran*, *Heendikwee* and *Dena wee* scored more than 20% survival rate and the highest survival rate was recorded by *Moddaikaruppan* (45.56%). *Muthumanikkam*, and *Dikwee* totally died during the stress period. Significantly highest green plant height (9.81cm) and root length (2.38cm) at salinity stress were recorded by *Moddaikaruppan* ($\alpha=5\%$). There were correlations in between survival percentage and plant height ($r=0.927$, $\alpha=5\%$) as well as survival percentage and root length ($r=0.928$, $\alpha=5\%$). There were no correlations in between survival percentage, root dry weight and shoot dry weight. Among all the tested rice cultivars *Moddaikaruppan* was the best salinity tolerant rice cultivar at the seedling stage.

Key words: Salinity tolerance, traditional rice cultivars, Yoshida solution

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