AGRONOMIC RESPONSES OF SALT STRESS ON SELECTED RICE (*Oryza sativa* L.) CULTIVARS DURING SEEDLING STAGE

ELILNILA ARULMOLIRAJAH

DEPARTMENT OF AGRICULTURAL BIOLOGY
FACULTY OF AGRICULTURE
EASTERN UNIVERSITY
SRI LANKA
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ABSTRACT

Studies were conducted in the laboratory of Department of Agricultural Biology of the Faculty of Agriculture, Eastern University Sri Lanka to assess the salt tolerance of selected rice cultivars viz At307, Bg358 and Pachchaiperumal during seedling stage commonly grown in Batticaloa district. The experiment was laid out in Completely Randomized Design (CRD) having six treatments and four replications. The seedlings of selected rice cultivars were raised in river sand and transplanted in Modified Yoshida Solution after fourteen days. Salt stress was imposed by adding 120 mM NaCl in Modified Yoshida solution. The pH of those solutions was adjusted to 4.5 by adding 0.1% nitric acid. Salt stress reduced the plant height, number of green leaves in full development and Relative Growth Rate of all selected cultivars. But, root length was not significantly affected by different cultivars and solutions. Significant interaction effect was found between cultivars and culture solutions on Leaf Weight Ratio (LWR) and plant dry weight. Bg 358 produced the highest average LWR in control and treated Modified Yoshida solution and At 307was next to Bg 358. The cultivar At 307 produced the highest average plant dry weight in control and treated solutions and Pachchaiperumal was next to that. The overall performance of At 307 was better than other two on plant height, number of green leaves and Relative Growth Rate (RGR). The yield is highly correlated with plant dry weight of rice (Fageria *et al* 1997). From the results of the investigation, At307 could be evaluated as a better cultivar which has better capacity to tolerate salt than other selected cultivars in this experiment.

Key words: LWR, RGR, Salt stress.

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