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Evaluating the Response of Rice Genotypes to Salinity Stress In Germination Stage

M. Mohammadzadeh¹, M. Norozi², S.A. Peighambari³ and A. Nabipoor⁴

Abstract

In order to evaluate the response of rice genotypes to salinity stress, 16 rice genotypes were assessed to 4 salinity levels (0, 4, 8, 12, dS/m) through a split plot experiment based on completely randomized design at germination stage. Germination percentage, germination rate, length of radicle, length of shoot, radicle dry weight, shoot dry weight, total biomass, and total radicle-shoot weight were measured. Results showed those germination percentage and germination rates were decreased by the increase of salinity. It was demonstrated that tolerant varieties had a more germinate. Salinity had a significant effect on all of the studied traits except total biomass. Germination rate showed significant correlations with germination percentage, radicle length, shoot length, and dry weights of radicle and shoot ($P \leq 0.01$). Dry weight of shoot showed significant correlations with germination percentage, radicle length and shoot length. Based on germination traits, PSBRC88 and IR58025A/IR60819R were determined as salt tolerant and sensitive varieties, respectively. Results of this study would help to select for salt tolerant varieties in rice breeding programs.

Keywords: Rice, Salinity stress, Germination, Radicle length

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