Effect of salt stress on morpho-physiology, vegetative growth and yield of rice

ABSTRACT

Selection of salt tolerant rice varieties has a huge impact on global food supply chain. Five Malaysian rice (Oryza sativa L.) varieties, MR33, MR52, MR211, MR219 and MR232 were tested in pot experiment under different salinity levels for their response in term of vegetative growth, physiological activities, development of yield components and grain yield. Rice varieties, BRRI dhan29 and IR20 were used as a salt-sensitive control and Pokkali was used as a salt-tolerant control. Three different salinity levels viz. 4, 8, and 12 dS m-1 were used in a randomized complete block design with four replications under glass house conditions. Two Malaysia varieties, MR211 and MR232 performed better in terms of vegetative growth (plant height, leaf area plant-1, number of tillers plant-1, dry matter accumulation plant-1), photosynthetic rate, transpiration rate, yield components, grain yield and injury symptoms. While, MR33, MR52 and MR219 verities were able to withstand salinity stress over salt-sensitive control, BRRI dhan29 and IR20.

Keyword: Growth; Photosynthesis; Rice; Salinity; Transpiration; Yield