Salinity Effect on the Growth and Yield of TR9 Rice Variety

ABSTRACT

Rice, being a major staple food, is crucial to more than half of the world's population. However, the ever-increasing problem of salinity had reduced the productivity of rice in many paddy fields around the world. In this study, the growth and yield performance of TR9 rice variety were compared at different salinity levels to determine the salt tolerance of the rice. A pot experiment was conducted in the net house of Faculty of Sustainable Agriculture (FSA), Universiti Malaysia Sabah. The experimental design used was completely randomized design (CRD) and each treatment consisted of five replicates. The salinity treatments used were different concentrations of seawater of 0% (control), 2.5%, 5%, 7.5% and 10% which were applied throughout the planting process. The data was analyzed using One-way ANOVA and LSD was applied to compare means. No significant difference ($P>0.05$) were observed in flag leaf length, number of unfilled grains per panicle, 100-grains weight, number of panicles per plant and free proline content in roots. Conversely, plant height, number of tillers per hill, percentage of productive tillers, panicle length, number of grains per panicle, number of filled grains per panicle, harvest index and free proline content in leaves shown significant difference ($P<0.05$) between the treatments. It was concluded that the rice performance under treatment S1 (control) was better compared to the rice plants treated under treatment S2 (2.5% seawater). The rice yield obtained in treatment S1 was 2.88 tons/ha more than in treatment S2. Further studies on the effects of various salinity levels and stress duration on TR9 rice variety should be conducted for better yield.