EFFECT OF MOISTURE STRESS ON DIFFERENT GROWTH STAGES OF TWO SELECTED RICE (*Oryza sativa L.*) VARIETIES

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Moisture stress is one of the most important factors affecting on growth and yield of rice cultivation. However, different developmental stages of rice respond differently to moisture stress. A pot experiment under shade house condition was carried out to evaluate the effect of moisture stress on different growth stages of two selected rice varieties at Rice Research and Development Institute, Bathalagoda during January to June 2014. The pots with five plants were exposed to moisture stress at different life stages until plant comes to temporary wilting point. According to treatments, irrigation was stopped at 14 (T_1), 28 (T_2), 42 (T_3), 56 (T_4), 70 (T_5), 84 (T_6) days after sowing and continuous irrigation (T_7) was practiced with Bg 360 and At 354 rice varieties. Treatments were laid out as two factor factorial in Randomized Complete Block Design with three replicates each. Exposed life stages to the moisture stress and varieties were considered as factors. Plant phenotypic measurements, soil moisture availability and climatic measurements were taken. The data were analyzed by Analysis of Variance using statistical analyze software and mean separation was done by using Duncan's multiple range test. The highest number of days spent for wilting (24 days) was recorded with At 354 and recovery (9 days) was recorded with Bg 360 at early vegetative phase. The lowest number of days (10 days) to wilting was observed at maximum tillering stage by Bg 360. The lowest number of days (1 day) to recovery was recorded at reproductive stage by Bg 360. Moisture stress at mid tillering stage has recorded the lowest number of tillers (2 tillers). The highest number of days taken (96 days) for first flowering by Bg 360 when the moisture stress was at maximum tillering stage. Compared to the control, moisture stress at tillering stage has recorded the lowest maximum root length. There was no significant difference *($p>0.05$)* among treatments or varieties in total biomass and root: shoot ratio. It can be concluded that when rice plant wilt at reproductive stage they recover early.

Keywords: Moisture stress, Recovery, Reproductive phase, Vegetative phase, Wilt