

Effect of Salt Stress on Relative Water and Chlorophyll Content in Selected Varieties of Rice (*Oryza sativa* L.)

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Soil salinity causes several deleterious effects on the growth and development of plants on the basis of physiological and biochemical levels. Considering this feature, an experiment was conducted at the Agronomy farm of the Eastern University, Sri Lanka to assess the salt stress effects of selected rice cultivars on the relative water content, 'chlorophyll a', 'chlorophyll b' and total chlorophyll contents and the impact on yield. Three rice cultivars namely; "Pachaiperumal", "At 307" and "At 308" were used for this study. A set of three weeks old rice seedlings were subjected to salinity after transplanting them in polyethylene bags. Salt stress has caused significant reduction in the tested physiological attributes of rice cultivars. Rice cultivar "At 307" showed the highest Relative Water Content (66.9%) and the lowest one (48.1%) was found in 'Pachaiperumal' under salinity stress. Rice cultivars "At 307" and "At 308" showed the highest 'chlorophyll a', 'chlorophyll b' and total chlorophyll contents while "Pachaiperumal" had the lowest amounts of these pigments under salt stress condition. Salt stress has significantly reduced the yield of selected rice cultivars. The highest yield (2.2 tha^{-1}) was obtained in "At 307" and the lowest one (0.4 tha^{-1}) was recorded in "Pachaiperumal" under salinity situation. By considering the tested parameters, it was concluded that, "At 307" was able to retain substantial amount of water, chlorophyll and yield compared to the other cultivars under saline condition. Hence, cultivar "At 307" was identified as the most salt tolerant one compared to the rest of the cultivars.

Keywords: Chlorophyll, rice cultivars, RWC, salt stress, yield

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