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Effects of Sodium Chloride Induced Salt Stress on Yield and Selected Physiological Attributes of Brinjal Cultivars

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Salt stress affects almost every aspect of Plant Physiology at both whole plant and cellular levels through osmotic and ionic stress. Brinjal is grown in the Batticaloa district to a limited extent; as it is highly susceptible to salt stress. Considering this, an experiment was conducted in the Sandy Regosols of the Batticaloa district to evaluate salt stress responses of 'Thirunelvely Purple', 'Palugamum White' and 'Padagoda' brinjal cultivars on the Relative Water Content, leaf Chlorophylls a, b and total Chlorophyll contents and fresh fruit yield. Chlorophylls a, b and total chlorophyll contents were determined using a spectrophotometer. Treatments 1, 3 and 5 were 'Thirunelvely Purple', 'Palugamum White' and 'Padagoda' brinjal cultivars watered with distilled water at 2 days interval. Treatments 2, 4 and 6 were treated with 100mM NaCl solution. Salt stress significantly ($p<0.05$) reduced the Relative Water Contents of all the tested brinjal cultivars. The highest amounts of Chlorophylls a (1.03 mgg^{-1}), b (0.72 mgg^{-1}) and total Chlorophyll (1.74 mgg^{-1}) were found in the 'Thirunelvely Purple' and the lowest Chlorophylls a (0.54 mgg^{-1}), b (0.43 mgg^{-1}) and total Chlorophyll (0.96 mgg^{-1}) were recorded in the 'Palugamum White' under salinity. Salt stress significantly ($p<0.05$) reduced the yield of tested brinjal cultivars. The highest yield (20.1 T/ha) was obtained in the 'Thirunelvely Purple' and the lowest (11.3 T/ha) was found in the 'Palugamum White' under salt stress condition. Based on the measured physiological attributes, 'Thirunelvely Purple' was identified as the most salt tolerant brinjal cultivar which may be suggested for cultivation in the saline tracts of the Batticaloa district.

Key words: *Brinjal, chlorophyll content, relative water content, salt stress, yield*

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