Impacts on Leaf Area Index, Plant Dry Weight and Yield as Influenced by Salinity Stress in Brinjal (*Solanum melongena* L.) Cultivars

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Brinjal is an important vegetable which is quite popular and widely cultivated crop, mostly grown in the rainy season. In Sri Lanka, brinjal is commonly cultivated in Jaffna, Batticaloa, Polannaruwa and Moneragala districts. In the Batticaloa district, brinjal is widely grown in Kaluthavalai, Vaharai and Eravur areas. Large extent of brinjal cultivation in Kaluthavalai area is affected by salinity. The literature that exists on egg plant's tolerance to soil salinity is contradictory; some are classified as moderately sensitive, whereas others reported that it is sensitive to water stress caused by salinity. Considering this, an experiment was conducted in the Sandy Regosols of the Batticaloa district to evaluate salinity response of 'Thirunelvely Purple', 'Palugamum White' and 'Padagoda' brinjal cultivars on the Leaf Area Index (LAI), plant dry weight and yield. A concentration of 100mM NaCl solution was applied for the treated plants and distilled water used as control treatment. The treatments were 100mM NaCl solution for the 'Thirunelvely Purple' (T_2), 'Palugamum White' (T_4) and 'Padagoda' (T_6) brinjal cultivars and distilled water for the 'Thirunelvely Purple' (T_1), 'Palugamum White' (T_3) and 'Padagoda' (T_5) brinjal cultivars were applied to Field Capacity at 3 days interval during the experimental period. This experiment was laid out in the 3 x 2 factor Factorial Randomized Complete Block Design with four replicates. The results showed that salt stress significantly ($p<0.05$) reduced the LAI of all the tested brinjal cultivars. The highest LAI (0.55±0.02) was obtained in the 'Thirunelvely Purple' and the lowest (0.23±0.01) was found in the 'Palugamum White'. Salt stress significantly ($p<0.05$) reduced the plant dry weight of the tested brinjal cultivars. The highest plant dry weight (126.4±1.52g) was found in the 'Thirunelvely Purple' and the lowest (79.8±0.92g) was recorded in the 'Palugamum White'. Salt stress significantly ($p<0.05$) reduced the yield of the brinjal cultivars. The highest yield (20.1±0.34 t/ha) was obtained in the 'Thirunelvely Purple' and the lowest (11.3±0.21 t/ha) was found in the 'Palugamum White'. Therefore, this study concludes that 'Thirunelvely Purple' brinjal cultivar exhibited the highest growth performance under saline condition and was identified as the most salt tolerant cultivar compared to the other tested ones.

***Keywords*:** Brinjal; Leaf Area Index; Plant dry weight; Salt stress; Yield