The Impact Of Salt Stress On The Growth Physiological Attributes Of Selected Okra (*Abelmoschus Esculentus* L.) Cultivars In The Sandy Regosols

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ABSTRACT

Salinization of underground water resource is a major problem that contributes in fixing the agricultural productivity. The salt stressed plants have shown stunted growth pattern with minimal lifespan of leaves and net productivity. By looking at these features, an experiment was conducted to assess the salt stress outcomes of selected okra cultivars on shoot and root length, shoot and root weight, number of leaves and flowers and chlorophylls 'a' and 'b' contents. The okra cultivars 'Haritha', 'EUOK 2' and 'MI 5' were used for this study. Sodium chloride (100 mM) was used to create the salinity while, distilled water was used as the control. Salt stress significantly reduced the shoot and root length of all the tested okra cultivars. The lowest reduction (39.1 cm shoot length and 21.7 cm root length) was found in the 'EUOK 2' cultivar. 'MI 5' showed the highest reduction (31.6cm shoot length and 15.6 cm root length). Salt stress also significantly reduced the shoot and root fresh weights of all the okra cultivars. The highest reduction (11.9 g shoot weight and 4.0g root weight) was found in the 'MI 5' and 'EUOK 2' showed the lowest (16.3 g shoot weight and 6.6 g root weight) reduction. Salt stress also significantly reduced the amounts of chlorophylls 'a' and 'b' contents of okra cultivars. The highest reduction (0.73 mg g^{-1} chlorophyll 'a' and 0.03mg g^{-1} chlorophyll 'b') was obtained in the 'MI 5' cultivar. 'EUOK 2'showed the lowest (1.17 mg g^{-1} chlorophyll 'a' and 0.11mg g^{-1} chlorophyll 'b') reduction. From these observations it was arrived that 'EUOK 2' cultivar of okra was able to maintain the physiological attributes relatively better than the other tested cultivars under salinity situation. 'EUOK 2' therefore could be selected as the most salt tolerant okra cultivar which could thrive and perform successfully in the salt affected areas of the sandy regosols.

Key words: Chlorophyll, growth physiology, okra, salinity stress, sandy regosols.