EFFECT OF SOME DROUGHT TOLERANCE INDUCERS ON GROWTH AND PRODUCTIVITY OF COTTON UNDER DIFFERENT IRRIGATION INTERVALS

By

AMIRA SADEK EL–HOSANY DRWISH
B.Sc. Agric. Sci., Microbiology, Fac. of Agric., Ain Shams Univ., 2010
M.Sc. Agric. Sc., Agronomy, Fac. of Agric., Ain Shams Univ., 2018

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ABSTRACT

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Cotton known as the king of fibers and important source of oil. The aim of this study is mitigate stress of water deficit (irrigation intervals 10, 15 and 20 days) by some osmo protectants untreated (control) glycine betaine (GB) at two rates 400 and 200 ppm, proline at two rates 100 and 50 ppm and chitosan at two rates 300 and 100 ppm). Average vegetative growth characteristics as affected by irrigation periods and drought tolerance inducers and their interactions at 70, 90 and 110 days of planting, yield and its components. Data indicated that Prolonging irrigation interval significantly decreased growth, yield and its components, fiber parameters, total chlorophyll, chls a, and chls b while, Proline and total soluble sugars significant increased. All drought tolerance inducers showed significant increase in cotton growth and productivity. In general, plants were treated with GB (at rate 400 ppm) showed superiority in all studied traits. In this respect, irrigation intervals x drought tolerance inducers interaction was significantly effect on growth and productivity fiber quality and chemical properties. Application of drought tolerance inducers mitigates the effect of prolongs irrigation intervals on cotton. All drought-tolerant inducers were achieved a higher value with irrigation interval 15 days compared with control under irrigation interval 10 days with yield and its components. Glycine betaine 400 ppm improvement ability of cotton plants to tolerance negative effect of prolonging water intervals.

Keywords: Cotton, Irrigation intervals, Water stress, Glycine betaine, Proline and Chitosan.

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