الإستجابة الفسيولوجية و التشريحية لنباتات قمح مجهدة ملحياً للمجال المغناطيسي

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PHYSIO-ANATOMICAL RESPONSES OF SALINITY STRESSED WHEAT PLANTS TO MAGNETIC FIELD

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ABSTRACT: *In order to investigate the physiological and anatomical changes of wheat plants (Triticum aestivum L. cv. Sakha 93) exposed to magnetic field under salinity conditions. Pot experiment was carried out in a greenhouse at the Experimental Farm of Faculty of Agriculture, Menofiya University, Shibin El-Kom, Egypt during the growing season of 2010/2011. Plant samples were taken 100 days of sowing. The obtained results of magnetic treatment (magnetized seeds, magnetized water and the combination of magnetized seed and water treatments) showed that plant growth and some physiological, biochemical characters i.e. (water relations, membrane integrity, total proline and endogenous phytohormone) were significantly increased at salinity level (10 dS/m) compared to the control. The anatomical stem parameters i.e. (stem diameter, stem cavity diameter, number of vascular bundle/cross section, vascular bundle diameter and vessel diameter] and the anatomical leaf parameters i.e. [lamina thickness, midrib thickness, midrib vascular bundle diameter and vessel diameter] of wheat plant were markedly enhanced by the different magnetic treatments and their combination at salinity level (10 dS/m) compared to the control, while there were a remarkable decreases in leaf water deficit, transpiration rate and the concentration of ABA in plant shoot. Generally, the effect of magnetized water treatment was more pronounced in the plant development.*

Key words: ***Magnetic water, wheat plants, growth, water relations, chemical constituents, phytohormones, anatomical.***

تأثير مياه المجارى على الأيض والمحصول فى نبات الفول البلدى

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EFFECT OF SEWAGE WATER ON GROWTH, METABOLISM AND YIELD OF FABA BEAN PLANTS

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ABSTRACT: Two pot experiments were conducted under greenhouse conditions to study the effect of sewage water on growth analysis, water relations, plant pigments, certain biochemical composition and yield of faba bean plants. This experiment was performed in the Department of Agricultural Botany, Faculty of Agriculture, Minoufiya University, during successive season of 2008/2009. The sewage water was diluted with tap water to give three rates of 25, 50 and 75% used in irrigation. Plant sample was successively taken at random from every treatment starting 45 DAS. The results showed that sewage water increased all growth characters, total protein, total carbohydrates, activity of enzymes and proline as well as yield. The concentration of Zn, Mn, Cd and Pb were increased greatly in the different faba bean organs in response to sewage water application. Photosynthetic pigments, rate of water loss, relative water content were decreased by of sewage water Irrigation.

Key words: *Sewage water, Faba bean, Growth, Enzymes activity, Heavy metals, Yield*