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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.***

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INTERACTION EFFECT BETWEEN FUSARIUM OXYSPORUM, RHIZOCTONIA SOLANI AND MELOIDOGYNE SPP. ON POTATO PLANTS

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ABSTRACT:

The effect of three pathogenic organisms, Fusarium oxysporum, Rhizoctonia solani and mixed group of Meloidogyne spp. (M. javanica and M. incognita) separately or in a combination on potato plant cv. Nicola was studied under greenhouse conditions. The combined infection with mixed Meloidogyne spp. plus tested fungi resulted in significant reduction in all nematode parameters, No. of J2 / soil, No. of developmental stages, No. of Females, No. of egg masses and reproduction factor compared with nematode treatment only. Disease severity of Fusarium wilt was greatly increased when mixed Meloidogyne spp. and R. solani were combined with F. oxysporum compared with wilt fungus treatment only. However, significant increase was observed on black scurf, stem canker diseases and infected tuber when mixed Meloidogyne spp. and F. oxysporum were combined with R. solani compared with R. solani treatment only. The interaction between the tested pathogenic organisms was more effective on reduction plant growth parameters reduction than each of this organisms separately.

Key words: Fusarium oxysporum, Rhizoctonia solani, Meloidogyne spp., Fusarium wilt, black scurf, stem canker, p