



Mitigation of salinity adverse effects of on wheat by grain priming with melatonin

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Abstract: A pot experiment was conducted during (2013/2014 & 2014/2015) at the National Research Centre, Dokki, Giza, Egypt, to study the effect of soaking wheat grains with melatonin (ME) (100 μ M and 500 μ M) on growth, photosynthetic pigments, IAA, yield quantity and quality in fever of nutritional and antioxidant compounds in the yielded grains of wheat plants irrigated with diluted seawater at 3.85 dS/m and 7.69 dS/m. Salinity stress caused marked decreases in wheat plant growth parameters (shoot height, number of leaves/plant, fresh and dry weights of shoot) with significant decreases in photosynthetic pigments and indole acetic acid (IAA) contents. Yield and yield attributes, carbohydrates, protein, nitrogen, phosphorous and potassium contents were decreased in response to different salinity levels. Meanwhile flavonoids and phenolic contents increased by salinity stress. Antioxidant activity at 50 and 100 μ g/l showed significant increases in response to salinity stress. On the other hand, ME treatments proved to be effective in enhancing growth parameters, photosynthetic pigments and IAA contents of salinity stressed plants. Melatonin treatments at different levels caused significant increases in yield and yield attributes, carbohydrate, protein, nitrogen, phosphorous, potassium, flavonoids, phenolic contents, and antioxidant activity of the yielded seeds either in non stressed and salinity stressed plants relative to their corresponding controls. Generally, 500 μ M ME was the most pronounced and effective treatment in alleviating the deleterious effect of salinity stress on wheat plants.

Key words: Antioxidant activity, flavonoids, melatonin, phenolics, protein, salinity, Wheat yield.

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