

RESPONSE OF SOME RICE VARIETIES TO IRRIGATION WITH BRACKISH WATER AND ORGANIC FARMING

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ABSTRACT:

Two experiments were carried out using lysimeter technique during the two summer seasons of 2005 and 2006 in the Rice Research and Training Center, Kafr El-Sheikh, to investigate the response of three rice varieties (IR29, Sakha 102 and Giza 178) to the irrigation with brackish water at levels (0 , 4000 and 8000 ppm) and organic matter at 0.1gm/L. Results indicated that, The treated rice plants with brackish water at all levels significantly decreased plant height, No. of tillers, leaf area, shoot fresh and dry weights, No. of panicles/plant, No. of spikelets/panicle, No. of total grains/panicle, % fertility, straw yield, 1000-grains weight and harvest index, photosynthetic pigments, nucleic acids concentration and the total and relative water content, transpiration rate, the grain content of amylose and protein as well as the concentrations of N, P, K and Ca, while the heading date, No. of unfilled grains, proline, leaf water deficit, Na percentage and Na/K ratio were increased compared with control. Application the organic matter resulted in increasing all vegetative growth parameters under study, physiological and biochemical parameters as well as yield compared with control, while decreased No. of unfilled grains, LWD, proline concentration Na and Na/K ratio. Under salinity levels, the treated plants with organic matter improved all the previous characteristics compared with those grown under only brackish water and enhanced the growth and yield of all varieties and Giza 178 gave the highest increase in this respect. Plant genome study indicated that, there was no linkage between the two SSR markers (RM223 and RM315) linked to salinity and the salt tolerance in the varieties while, RM527 generated a clear level of polymorphism among the varieties but it wasn't linked to salinity tolerance. This means that, there is deference in molecular between the varieties under this study.

Key words: brackish water, organic matter, rice varieties, lysimeter, biochemical, Plant genome

EFFECT OF VITAMIN E AND SELENIUM ON SOME PHYSIOCHEMICAL COMPOSITIONS OF SOYBEAN PLANTS UNDER SALINITY CONDITIONS

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ABSTRACT:

The present investigation aimed to study the interaction between salinity and antioxidants (vitamin E and selenium) on some physiological and chemical compositions in alleviating salinity of soybean plants (*Glycine max L*) Giza 111, growing under saline condition at different levels (1.5,3 and 6 EC) with and without antioxidants. Photosynthetic pigments, total carbohydrates, soluble sugars and some minerals (N,P and K) were significantly decreased by salinity treatments meanwhile enzymes activity increased in different organs of the plants and these values increased also by antioxidants application. The interaction between antioxidants and salinity led to an increase in the above mentioned values especially at rate of 3 EC salinity plus 50 mg./l selenium. Meanwhile the interaction between rate of 6 EC salinity decreased the above mentioned values except the rate of 50 mg./l selenium under the same level of salinity which increased these values. It could be recommended that antioxidants has a good effect for improving the uptake of some minerals in saline soils and increasing plant resistance to salt stress.

Key words: Soybean, salinity, antioxidants, vitamin E, N uptake, selenium.