Evaluation of osmotic-stress tolerance of rapeseed (*Brassica napus* L.) cultivars in aquaculture system

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Abstract

This research was performed in 2011 at University of Mohaghegh Ardabili, Iran, to evaluate osmotic-stress tolerance, at seedling stage, of rapeseed (*Brassica napus* L.), as a split plot experiment based on randomized complete blocks design with four replications. Levels of osmotic stress were considered as main factor and twelve rapeseed cultivars were sub-factor, that were evaluated under aquaculture conditions, based on length, volume, area and dry weight of roots, shoot dry weight and biological yield. The results showed that stress levels had signification effect on studied traits ($P \leq 0.01$). Significant differences were observed between rapeseed cultivars. Effect of osmotic stress on length, volume, area and dry weight of roots, shoot dry weight and biological yield of different cultivars was not the same. The greatest amount of reduction in the studied traits under osmotic-stress conditions was observed in shoot dry weight and biological yield; root length was reduced the least. Based on cluster analysis, at all three levels of drought stress, canola cultivars were placed in three groups. The Licord cultivar, at all three conditions, was located in the group that its traits were higher than other groups. The Okapi, Quantum, Tallaye and Hyola308 cultivars showed lower tolerance to osmotic stress. The Licord cultivar had higher tolerance to osmotic stress as compared to other cultivars.

Keywords: Water deficit stress, Biological yield.

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