

Evaluation of Waterlogging Tolerance of Wheat (*Triticum aestivum* L.) Genotypes in Stem Elongation Stage Using Waterlogging Stress Tolerance and Sensitive Indices

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Abstract

In order to study wheat genotype responses to different waterlogging stress levels during stem elongation stage and evaluation of indices of tolerance and sensitivity to tension, an experiment was conducted as a split – plot based on randomized complete blocks design (RCBD) in three replications, in 2007-2008 growing season at Ahvaz Agricultural Research and Natural Resources Center. In this study, the wheat genotypes (Chamran, Virinak, S-78-11, S-80-18) were plucked into primary plot and the waterlogging levels (0, 10, 20 days) were placed into secondary plot. Six indices of tolerance and sensitivity to waterlogging stress (MP, GMP, STI, TOL, HARM, SSI) were calculated for yield. In normal conditions, the line S-80-18 with yield 4/99 tons h⁻¹, and in mild and severe conditions, the line S-78-11 with the yield 3/68 tons h⁻¹ had the highest yield. The indices of MP, GMP, HARM, STI which had the highest correlation with the yield in normal conditions and also had different stress level were introduced as superior indices. These indices characterized the lines S-78-11 and S-80-18 as tolerant genotypes and the Virinak cultivar as sensitive to waterlogging. On the other hand, the indices of TOL and SSI also showed the line S-78-11 as the most tolerant and Chamran cultivar as the most sensitive to genotypes compared to waterlogging stress.

Keyword: *Wheat, Waterlogging stress, Tolerance and Sensitive Indices*