

OSMO AND HYDRO PRIMING INDUCED DROUGHT TOLERANCE IN MUNGBEAN

Marjana Yeasmin*

Executive Summary

An experiment was conducted at the Laboratory of Department of Agronomy, Sher-e-Bangla Agricultural University, during the period from July, 2017 to September, 2017. Three different experiments were conducted in a Completely Randomized Design with five replications. The first experiment was carried out to find out the effect of different concentrations of H₂O₂ (2%, 4%, 6% and 8%) on germination and growth behavior of BARI mung-6 under control condition. It results showed the highest rate of germination (90.31%), shoot length (145.10 mm), root length (91.25 mm), shoot dry weight (64.24 mg), root dry weight (23.23 mg), relative water content (89.25%), water retention capacity (21.81), coefficient of velocity of germination (21.48) and vigor index (214.20) when the seeds were primed with 2% H₂O₂ and the lowest results were found from primed with 8% H₂O₂. The second experiment was carried out to optimize the priming time on the germination and growth behavior of BARI mung-6. It was found that priming with 2% H₂O₂ for 6 hours showed the better results with reference to germination rate, shoot length, root length, shoot and root dry weight, relative water content, water retention capacity coefficient of velocity of germination and vigor index than 15 hours of H₂O₂ priming. In the third experiment, germination and growth behavior of primed seeds under 5 different drought (PEG) concentrations (0%, 5%, 10%, 15% and 20%) were evaluated using BARI mung-6. The results showed PEG- induced drought affected the all above mentioned parameters than control condition. The highest germination rate (88.21%), shoot length (128.20 mm), root length (85.09 mm), shoot dry weight (61.32 mg) and root dry weight (20.74 mg), relative water content (85.48%), water retention capacity (19.60%), coefficient of velocity of germination (19.80) and vigor index (188.50) were achieved from primed seeds placed with 5% PEG and the lowest results were recorded from 20% PEG. There was a slow reduction observed on above mentioned parameters with the increasing of drought concentration from 0% to 20% PEG. The result of the study suggest that exogenous H₂O₂ application effectively alleviated the adverse effect of drought stress.

* Assistant Professor, Dept. of Agronomy, Sher-e-Bangla Agricultural University, Dhaka-1207