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International Journal of Agricultural Sciences
Volume 12 | Issue 2 | June, 2016 | 167-175 ■ e ISSN-0976-5670
DOI:10.15740/HAS/IJAS/12.2/167-175
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RESEARCH PAPER

Relative performance of seed priming with tap water and inorganic salts on germination, invigoration, growth and yield of wheat (*Triticum aestivum* L.)

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Abstract : In a field experiment, one year old seeds of two late sown wheat varieties *viz.*, HUW 234 and WR544 were primed with tap water and inorganic salts including KNO_3 and Mg $(SO_4)_2$ singly (in 0.2% solutions) for 12 hours. After priming, the seeds were taken out and allowed for shade drying till returning to their original moisture content. One set of unprimed control was also kept simultaneously. Those primed and unprimed seeds were sown in the last week of December during 2011-12 in allocated plots in four replicates following Factorial Randomized Block Design (RBD) at the research farm of IISR Lucknow, taken temporarily by Directorate of Seed Research, Mau. The data showed that seed priming with tap water and inorganic salts including KNO_3 and Mg $(SO_4)_2$ singly in 0.2 per cent solution for 12 h significantly enhanced seed germination, shoot/root length, seedling dry weight, vigour index and finally the total biomass and grain yield in both the varieties evaluated over unprimed control. Among the treatment, KNO_3 priming displayed maximum values in respect of all characters studied followed by Mg $(SO_4)_2$ and tap water. Varieties differed significantly in respect of shoot/root length, seedling dry weight, spike length, number of spikelets / spike, number of grains and test weight. Variety HUW 234 superceded WR 544 in respect of seedling dry weight, vigour index, number of tillers/ run. meter and total biomass whereas WR 544 displayed maximum seed germination, shoot/root length, plant height and finally the total grain yield. Differences between varieties were found to be significant for some characters, however, insignificant for remaining others.

Key Words : Germination, Invigoration, Inorganic salts, Seed priming, Tap water, Varieties

View Point Article : Tiwari, T.N., Kamal, Dipti, Sinha, A.K. and Singh, Rajiv K. (2016). Relative performance of seed priming with tap water and inorganic salts on germination, invigoration, growth and yield of wheat (*Triticum aestivum* L.). *Internat. J. agric. Sci.*, **12** (2) : 167-175, **DOI:10.15740/HAS/IJAS/12.2/167-175.**

Article History : Received : 31.12.2015**; Revised :** 05.02.2016**; Accepted :** 08.04.2016

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