

Abstract:

The effects of hydration (priming and humidification) treatments at 15°C on the germination of onion seeds (i.e., long-day cvs Valencia and Çorum; short-day cvs TEG-502 and Banko) with reduced viability were investigated. Osmotic solutions of PEG-8000 at -0.5 and -1.0 MPa were used for 1, 2 and 3 days. Humidification treatments were also conducted for 1, 2 and 3 days, considering the results of preliminary experiments. At the end of the experiments, in cv. Valencia, all the priming treatments led to a decline in the germination percentages of the seeds. Priming treatment with -0.5 MPa for 1 and 2 days decreased the germination percentage in cv. Çorum, while the other treatments increased it. Nevertheless, all the priming treatments increased the germination percentage in cvs TEG-502 and Banko. As far as the mean germination time is concerned, there was no significant difference compared with control, following the priming treatments with PEG-8000 in cvs Valencia and Çorum. However, all the treatments increased the mean germination time in cvs TEG-502 and Banko. Humidification treatments increased the germination percentages of seeds in all cultivars. Moreover, all humidification treatments shortened the mean germination time. Humidification treatments gave better results compared with priming treatments, in terms of both germination percentage and mean germination time. The best results were obtained from 1-day and 3-day humidification treatments in long-day and short-day onion seeds, respectively.