

PEG- INDUCED DROUGHT STRESS EFFECTS ON SPINACH GERMINATION PARAMETERS

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One of the most important environmental factors limiting plants' growth and productivity is drought. Exposure to this stress reduces germination rate and seedling's growth with significant variations from crop to crop. An unavoidable consequence of drought exposure is the generation of reactive oxygen species. They can be extremely reactive with several cellular constituents such as proteins, lipids, and nucleic acids. Spinach (*Spinacia oleracea* L.) is one of the most consumed vegetable species for human nutrition. Spinach is rich in vitamins, such as vitamin C, and minerals, which are essential for human health. Besides, spinach contains large amounts of bioactive molecules such as glucuronic acid derivatives of flavonoids and p-coumaric acid derivatives that exhibit strong antioxidant activity.

This study investigated the effects of polyethylene glycol on spinach seed germination under drought stress. A controlled, experiment was conducted to investigate the effects of drought stress, induced by PEG on some germination parameters, mean germination time, germination speed, and coefficient of the velocity of germination, final germination speed, seed vigor index, and germination index of Spinach. The treatment of 2.5 % concentration PEG was applied to the seeds in three replicates, and for control, the nutrient solution was applied under controlled conditions. The seeds were germinated geotropically between moisten filter papers. Each roll contained 30 seeds. The germination speed and the germination index showed the considerable decrease in case of PEG as compared to control.