

Effect of Organic Matter Pre-Treatment on Germination and Seedlings Growth Indices on Marigold (*Calendula officinalis* L.) under Drought Stress

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Abstract : To investigate the effects of seed pretreatment on drought tolerance, an experimental Marigold (*Calendula officinalis* L) was tested in 2017-2018. A germination experiment was performed in the laboratory of Urmia University. The experiment was performed as a factorial experiment in a completely randomized design with three replications. The experimental treatments were dry levels of polyethylene glycol in four levels (control, -3, -6 and -9 bar) and treatments of Humic acid (72 mg / l), salicylic acid (2000 μ mol) and ascorbic acid (200 ppm), and control were performed. The results of the germination experiment showed that with increasing drought levels caused by polyethylene glycol, germination indices were significantly reduced, so that the highest value obtained from the measured traits was observed in normal irrigation and in priming treatments, and the lowest amount of these traits was observed at the -9 bar drought level due to polyethylene glycol in the control treatment. The results of this study showed an increase in drought tolerance and improved Marigold germination under stress by applying seed priming with salicylic acid, which is recommended in sustainable and organic agriculture.

Keywords : Marigold, organic matter, seed pretreatment, drought stress, allometric coefficient

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