STUDY OF MILK THISTLE (*SILYBUM MARIANUM L*) GERMINATION ATTRIBUTES AND SEED VIGOR UNDER SALINITY STRESS BY OSMOPRIMING ACCELERATORS

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Milk thistle (*Silybum marianum* L.), colloquially identified as Carduus marianus, known as milk thistle, is an annual or biannual plant of the Asteraceae family. Soil and water salinity in arid and semi-arid regions, is one of the most important stresses, can severely limit crop production. This study was conducted to evaluate the effects of the Priming on seed germination of Milk thistle under saline stress. The experiment was a factorial base completely randomized design (CRD) with three replications. The experimental factors were salinity stress including: (0, 62.2, 124.2, 186.2 and 248.8 mM) and three levels of priming, seed primed with Kno_3 (0.2 %, for the period of 72 hours), GA (500 ppm, during 48 hours) and hydro priming (water distiller, during 24 hours). A saline stress level treated by applies of NaCl, and for priming of distiller water use hydropriming technique. At the first stage, Milk thistle seed was treat and dried at 25$^{\circ C}$, then subjected to saline stress treatments for two week at room temperature. The results showed that priming technique had a significant effect ($p \leq 0.01$) on seedling parameters. Among pretreatment, The Kno_3 had the most positive effect on germination coefficient (GC) and thus GA had the most positive effect on mean germination time (MGT). In order hand, these seeds at the minimum time had the most germination rate. Means comparing showed that the most and least rate of germination was obtained by Kno_3 and Hydro priming respectively. So under different level of saline stress, Pretreatments of Kno_3 and Hydro priming had useful effect on radical length, more lateral roots and higher proportion of root to plumule, and the most root and plumule fresh weight was obtain by hydro priming pretreatments. So pretreatment of 500 ppm GA reduced number of abnormal seedlings. Overall, application of seed priming with Kno_3 (0.2 %) for the period of 72 hours and GA (500 ppm) during 48 hours suggested for obtain uppermost germination characters.

References

[1] Abdel-Moniem A, S, H. *Plant Prot*. **2002**, *35*, 157–160.
[2] Gresta F., G. Avola, P. Guarnaccia. J. *Herbs Spices Med. Plants*, **2007,** *12*, 51–60