SALINITY IMPACTS ON SEED GERMINATION INDICES IN MEDICINAL PLANT LEMON BALM (*MELISSA OFFICINALIS* L.)

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Lemon balm (*Melissa officinalis* L.) is an important medicinal plant in the family Lamiaceae that is blessed with bioactive compounds [1]. Germination is a critical stage in the life cycle of weeds, medicinal and crop plants. Seed germination and early seedling growth are critical stages for the establishment of the plant populations under saline conditions [2]. The objective of present study was to investigate the salinity effects on seed germination indices of *Melissa officinalis*. In this regard, an experiment was carried out based on randomized complete block design with five salinity levels (control, 3, 6, 9 and 12 dsm^{-1}) and four replicates. The results indicated that salinity levels had significant effect on the seed germination percentage (GP), mean germination time and germination rate. After two days of salt exposure the highest (48.5%) and lowest (0%) germination percentage were obtained from the control and 12 dsm^{-1} salinity level, respectively. Exposing the seeds with salt showed that increasing the salinity levels led to decrease in germination percentage and rate as well as the primary shoot and root length. Although, the high salinity caused delay on seed germination, but during the experimental period germination percentage increased but no significant differences were observed among the treatments in terms of GP after two weeks. The mean comparison of treatments showed that the mean germination time in control was the lowest (1.89 days) and in 12 dsm^{-1} salinity level was the highest (4.97 days). The primary shoot and root length significantly decreased with increasing salinity levels. In agreement with the reports of Siti Aishah et al. [3] and Cuartero et al. [4], the findings of this study indicated that salinity caused delay on germination rate of the *Melissa officinalis* seeds, but no absolute inhibition was observed in total germination percentages of the seeds in different salinity levels.

References

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