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**METHYL JASMONATE IMPACTS ON SEED GERMINATION INDICES  
IN MEDICINAL PLANT NAEIN-E HAVANDI  
(*ANDROGRAPHIS PANICULATA* L.)**

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Naein-e Havandi (*Andrographis paniculata*) is a medicinal herb in the family Acanthaceae. The leaves of the mature plant contain abundant diterpinoids of medicinal properties [1]. Research showed that the use of MJ causes the decrease processes of germination inhibitors [2], and also increase the antioxidant and oxidative stress reduction can improve plant growth [3]. Germination is a critical stage in the life cycle of weeds, medicinal and crop plants. The objective of present study was to investigate the methyl jasmonate effects on seed germination indices of *Andrographis paniculata*. In this regard, an experiment was carried out based on completely randomized design with five methyl jasmonate levels (control, 75, 150, 225, 300  $\mu$ M) and three replicates. The results indicated that methyl jasmonate levels had significant effect on the seed germination percentage (GP), mean germination time and germination rate. After three days of methyl jasmonate exposure the highest (25.33%) and lowest (10.67%) germination percentage were obtained from the 300 $\mu$ M methyl jasmonate level, respectively. Exposing the seeds with methyl jasmonate showed that increasing the methyl jasmonate levels led to decrease in germination percentage and rate. Although, the high methyl jasmonate 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 75 $\mu$ M was the lowest (2.22 days) and in 225  $\mu$ M methyl jasmonate level was the highest (3.62 days). In agreement with the reports of Bialeca and Kepczynski. [3], the findings of this study indicated that methyl jasmonate caused delay on germination rate of the *Andrographis paniculata* seeds, but no absolute inhibition was observed in total germination percentages of the seeds in different methyl jasmonate levels.

**References**

- [1] Valdiani, A.; Mihdzar, A. K.; Tan, S. G.; Talei, D.; Puad, M. A.; Nikzad, S. *Mol Biol Rep.* **2012**, *39*, 5409-5424.
- [2] Govahi, M.; Arvin, M. J.; Safari, G. *Agrochimica.* **2008**, *4*, 12-21.
- [3] Keramat, B.; Daneshmand, F. *Plant process and function.* **2012**, *1*, 26-38.
- [4] Bialeca, B.; Kepczynski, J. *Plant Growth Regul.* **2003**, *41*, 7-12.