عنوان مقاله:

The Effects of Simulated Vibration Stress on Plant Height and Some Physical and Mechanical Properties of Coleus blumei Benth

محل انتشار:

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خلاصه مقاله:

Non-chemical control of plant growth is an important goal for the production of ornamental pot plants. In the present study the effects of simulated vibration on plant height and some physical and mechanical properties of Coleus stem were investigated. The study was conducted as a factorial experiment based on a completely randomized design with three replications. Vibration stresses were performed using a laboratory vibration simulator and the effects of vibration parameters such as frequency and duration on the stem characteristics of Coleus plants were examined. Vibration frequency included three levels of 7.5, 10 and 12.5 Hz and vibration duration included three levels of 0 (control), 5 and 10 min. Based on the obtained results, vibration stress caused significant decrease in the height and surface area of the stems. Vibration frequency of 12.5 Hz with 10 min duration caused 31% decrease in plant height in comparing to the control samples. Mechanical properties of stems including modulus of elasticity, bending force, and bending stress were reduced by increasing vibration frequency and duration when compared to the control samples. In conclusion, the results of the current study indicated that vibration stress on Coleus decreased plant height while increased the elasticity and resistance to the fracture caused by mechanical forces of the stem.

کلمات کلیدی:

Bending stress, Deflection of stem, Modulus of elasticity, Plant height, Vibration stress