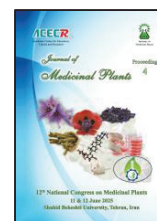




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Evaluating the Role of *Bacillus subtilis* in Alleviating Salt Stress in *Cichorium intybus*

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ABSTRACT

Medicinal plants are particularly vulnerable to drought stress, which significantly affects their growth and the production of essential bioactive compounds. Prolonged water deficits interfere with crucial physiological processes, such as photosynthesis and nutrient uptake, thereby compromising their medicinal properties and challenging sustainable cultivation practices. This study focuses on chicory (*Cichorium intybus*), a species within the Asteraceae family, with origins in western Asia, northern Africa, and central Europe, and historical significance dating back to ancient Egypt. Chicory is characterized by its slender, densely hairy stems and limited branching near its apex. An experiment was conducted under controlled greenhouse conditions using a randomized block design to assess the effects of *Bacillus subtilis* on chicory's salinity tolerance. Fourteen treatments, encompassing seven salinity levels with and without bacterial application, were tested in four replicates. Results revealed that the application of *Bacillus subtilis* significantly improved chicory's tolerance to salinity, achieving a threshold of up to 10 dS. These findings underscore the potential of biological interventions to enhance the sustainable cultivation of medicinal plants in challenging environments, particularly in Iran.

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