



**AKADEMIJA NAUKA I UMJETNOSTI BOSNE I HERCEGOVINE
АКАДЕМИЈА НАУКА И УМЈЕТНОСТИ БОСНЕ И ХЕРЦЕГОВИНЕ
ACADEMY OF SCIENCES AND ARTS OF BOSNIA AND HERZEGOVINA**

SPECIAL EDITIONS
VOL. CXL

Department of Natural Sciences and Mathematics
Volume 18

INTERNATIONAL CONFERENCE

**"MEDICINAL AND AROMATIC PLANTS
IN GENERATING OF NEW VALUES
IN 21st CENTURY"**

Sarajevo, 9-12 November, 2011

Book of Abstracts

Editor in Chief
Sulejman Redžić

SARAJEVO 2011



ACADEMY OF SCIENCES AND ARTS
OF BOSNIA AND HERZEGOVINA
Department of Natural and
Mathematical Sciences



Medicinal and
Aromatic Plants
Sarajevo



International Conference

Medicinal and Aromatic
Plants in Generating of New Values
in 21st Century



November 9-12th, 2011 Sarajevo, Bosnia and Herzegovina
Congress Center, Hotel HOLLYWOOD, Ilidža - Sarajevo



SL.H.04.

EFFECT OF WATER AND SALINITY STRESSES ON
GERMINATION INDICES AND SEEDLING GROWTH
IN ARTICHOKE (*CYNARA SCOOLYMUS*) AND PURPLE
CONEFLOWER (*ECHINACEA PURPUREA*)

Parviz Rezvani MOGHADDAM¹, Mohammad Behzad AMIRI¹, Hamid Reza
EHYAYI¹, Jabbar FALLAHI¹, Mahsa AGHHAVANI-SHAJARI¹

¹Department of Agronomy, Faculty of Agriculture, Ferdowsi University, Mashhad, Iran.

Corresponding author: agroecology86@yahoo.com

Drought and salinity are widespread problems around the world [4]. Germination is one of the most critical phases of plant life in which greatly influenced by stress [2]. Poor germination and decreased seedling growth result in poor establishment and occasionally crop failure [4]. Therefore, the objective of this research was to study the effects of water and salinity stress on germination properties and early seedling growth in Artichoke and Purple coneflower medicinal plants. For this four laboratory's experiments were conducted in completely randomized design with four replications at Ferdowsi University of Mashhad in 2009. Treatments were eight levels of water stress (0, -2, -4, -6, -8, -10, -12 and -14 bar) for first and second experiments and six levels of salinity stress (0, 50, 100, 150, 200 and 250 Mmol of NaCl) for third and fourth experiments. Results showed that germination percentage in two studied plants was decreased with increase in stress levels. The decrease in germination under drought and salt stress conditions is due to the fact that seeds develop an osmotically enforced dormancy in these conditions [3]. Artichoke was more resistance than Purple coneflower to water and salinity stress, where amount of germination in Artichoke and Purple coneflower were 72 and 5% in -10 bar of water stress, these amounts were 75 and 8% in 150 Mmol of salinity stress. Moreover, mean germination time (day^{-1}) increased by increasing in water stress in Artichoke but there were not significantly different in Purple coneflower. Radicle to plumule length ratio was increased by increasing in water and salinity levels in artichoke, while this ratio was without difference in water stress and was decreased in salinity stress in purple coneflower. Reported that an increased root/shoot ratio appears to be an adaptation to stress, resulting in more efficient water and nutrient uptake under stress conditions [1]. Also, seedling dry weight was decreased by increasing water and salinity stress in two studied plants. Overall, it seems that germination indices and seedling growth in Artichoke were superior than Purple coneflower.

Keywords: Drought, Mean Germination Time, Radicle, Plumule

References:

1. Gorham, J., et al. (1999) Plant Soil. 89:15–40.
2. Misra, N., Dwivedi, U.N. (2004) Plant Sci. 166: 1135–1142.
3. Saboora, A., Kiarostami, K. (2006) Pak. J. Biol. Sci. 9 (11): 2009-2021.
4. Soltani, A., et al. (2006) Environ. Experi. Bot. 55: 195–200.