



KASTAMONU UNIVERSITY
Faculty of Engineering and Architecture



KASTAMONU 2018
TÜRK DÜNYASI KÜLTÜR BAŞKENTİ



International

Ecology

2018

Symposium



SYMPOSIUM PROGRAM

19-23 JUNE

KASTAMONU/TURKEY

14:15-14:30	A Sustainable Campus Strategy-Ege University	<u>S. Tuğçe Dağlıoğlu</u> , Nuri Azbar
14:30-14:45	COFFEE BREAK	
SESSION A.6	Ecological Growth and Development	
	Session Chair: Prof. Dr. İbrahim ATALAY	
14:45-15:00	A Research on the Vegetation Structures of the Mountain Pastures in District Adana	<u>Selahattin ÇINAR</u> , Rüştü HATİPOĞLU, Mustafa AVCI, İlker İNAL, Celal YÜCEL
15:00-15:15	The Effect of Different NaCl Doses on Germination and Plant Growth of Buckwheat (<i>Fagopyrum esculentum</i> Moench)	<u>Sema Leblebici</u> , Erdem Gülümser, Zeki ACAR
15:30-15:45	Physiological Alterations of Strawberry Plant Under PhotoSelective Nets	<u>Servet ARAS</u> and Ahmet EŞİTKEN
15:45-16:00	Estimation of Growth of Pedunculate Oak (<i>Quercus robur</i> L.) Individuals by Using Ecological Based Models	Tuğrul VAROL, Halil Barış ÖZEL, <u>Sezgin AYAN</u> , Nebi BİLİR and Uğur ÇAKMAKLI
16:15-16:30	COFFEE BREAK	
SESSION A.7	Ecological Growth and Development	
	Session Chair: Prof. Dr. Sezgin AYAN	
16:30-16:45	Effects of Some Stand Parameters and Physiographic Factors on Above-Ground Biomass of Calabrian Pine Stands	Aydın Kahrıman, Turan Sönmez, Abdurrahman Şahin, <u>Mehmet Yavuz</u>
16:45-17:00	Garlic (<i>Allium sativa</i>) Cultivators of Applications in Ecological Context	<u>Nevin AKARSU</u> , Sefa PEKOL
17:15-17:30	The Ecology of Forest Vegetation in the Western Part of Black Sea Region	İbrahim ATALAY
17:30-17:45	Benthic Habitat Mapping With Multi Beam Echo Sounder System	Mustafa Ümit Gümüşay, <u>Tolga Bakırman</u> , Nedim Onur Aykut and İnci Tüney Kızılkaya

Thursday, 21 June 2018 (HALL H)

SESSION A.8	Ecological Growth and Development / Ecogeography / Environmental Biology	
	Session Chair: Prof. Dr. Ömer KÜÇÜK	
9:00-9:15	Eco-physiological Responses of Drought Tolerant Woody Species to Desert Conditions in Karapınar/Konya	<u>Bülent Akgün</u> , Emre Yazar and Ferit Kocaçınar
9:15-9:30	Comparison of Fatty Acids and Amino Acids Profiles of Whiting (<i>Merlangius merlangus euxinus</i> Nordman 1840) Meat and Roe During Fishing Season	<u>Demet Kocatepe</u> , Can Okan ALTAN, Hülya TURAN
9:30-9:45	Post-Fire Regeneration Strategies of Mediterranean Region Pines	<u>Nursema Aktepe</u> , Ömer Küçük, Özkan Evcin
9:45-10:00	We Know About the Level of Microplastic Pollution, the Methods of Treatment and Impacts	<u>Nejdet DEĞERMENÇİ</u> and Gökçe Didar DEĞERMENÇİ
10:00-10:15	COFFEE BREAK	
SESSION A.9	Environmental Biology	
	Session Chair: Assoc. Prof. Dr. Tolga ULUSOY	
10:15-10:30	Suitable Site Conditions for the Distribution of Black Pine in Gölhisar District, Turkey	<u>Özdemir ŞENTÜRK</u> , Serkan GÜLSOY and M. Güvenç NEGİZ
10:30-10:45	The Effects of Vermicompost Tea on the Root Growth and Mitosis of Onion (<i>Allium cepa</i>)	<u>Salih Dikilitaş</u> , Sibel Sütüoğlu and Özlem Aksoy
10:45-11:00	Scots Pine Pollen in the Areas of the Technogenic Pollution of Ural	<u>Svetlana Makhniova</u> , Pavel Mohnachev and Sezgin Ayan
11:15-11:30	Physiological Determination of Reactions Formed by Different Boric Acid Applications in Some Safflower (<i>Carthamus tinctorius</i> L.) Types	<u>Şifanur Sülüş</u> and <u>Sema Leblebici</u>

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ORAL PRESENTATION

Physiological Determination of Reactions Formed by Different Boric Acid Applications in Some Safflower (*Carthamus tinctorius* L.) Types

Şifanur Sülüş¹ and Sema Leblebici^{2,3}

¹Department of Biotechnology, Graduate School of Science, Bilecik Şeyh Edebali University, Bilecik-Turkey

²Department of Molecular Biology and Genetics, Faculty of Arts and Sciences, Bilecik Şeyh Edebali University, Bilecik, Turkey

³ Biotechnology Application and Research Center, Bilecik Şeyh Edebali University, Bilecik, Turkey

Corresponding Author: e-mail: sifanurgungor@gmail.com

Introduction: The changes that occur in biotic and abiotic factors cause some changes which are expressed as stress and which are effective on the physiological and metabolic events in plants. These changes may negatively affect growth and development and cause to the death of the plant. In plants, boron stress increases the activities of antioxidative enzymes and causes some physiological changes. In this study safflower (*Carthamus tinctorius* L.) plant were used as experimental material both as it is an industrial plant that can be used in many fields such as food, forage and dyeing industry and both it shows more resistance to most plants.

Material and Methods: In this study, Remzibey, Balcı and Dinçer types of safflower (*Carthamus tinctorius* L.) plant were used as experimental material. Seeds of each varieties were germinated in seed beds which contains 100 seeds in vials. Distilled water used as control group and 5, 10, 15, 20 mM boric acid (H₃BO₃) solutions were applied. The condition was 16 hours light/8 hours dark photoperiod and 25±1°C in growth chamber. Changes in APX, CAT, GR and SOD enzyme activities were determined at the physiological level by using leaves of safflower plant which were germinated by applying boric acid in different concentrations.

Results: In our study, the values obtained for antioxidative enzyme activity also decreased on high concentration of boric acid. Antioxidant enzyme activities were found to be effective on boron tolerance. It was determined that increase in boric acid concentration increases enzyme activity in all varieties. APX, CAT, GR and SOD activities decreased at 5 and 10 mM and 15 and 20 mM boric acid application was observed relative to other concentrations.

Discussion: One of the most important stress factors affecting plants is boron toxicity. Though the element boron is one of the micro elements absolutely necessary for the growing of the plants, too much boron found in the soil is a stress factor which limits the plant growth and productivity. As a result, it is understood from the results of the antioksidant enzyme activities that safflower types can cope with the low boric acid concentration. However, high boric acid concentrations (15 and 20 mM) caused to stress and it was determined that increased enzyme activities in plant samples.

Keywords: *Carthamus tinctorius* L., Boric acid, APX, GR, CAT, SOD