2. INTERNATIONAL CONGRESS ON PLANT BIOLOGY

"100 Years of Atatürk's Departure to Samsun"

2. ULUSLARARASI BİTKİ BİYOLOJİSİ KONGRESİ

"Atatürk'ün Samsun'a Çıkışının 100 yılında"

20-23 June 2019 Samsun

BOOK OF ABSTRACTS
BİLDİRİ ÖZETLERİ KİTAPÇIĞI

Ondokuz Mayıs University

Flora Research Association

ISBN: 978-9944-0226-0-6

http://bitkibiyolojisikongresi.omu.edu.tr/

Samsun/2019

2 nd INTERNATIONAL CONGRESS ON PLANT BIOLOGY 20-23 JUNE 2019

ONDOKUZ MAYIS UNIVERSITY - FLORA RESEARCHES ASSOCIATION/ SAMSUN-TURKEY

2nd INTERNATIONAL CONGRESS ON PLANT BIOLOGY

"100 Years of Atatürk's Departure to Samsun"

2. ULUSLARARASI BİTKİ BİYOLOJİSİ KONGRESİ

"Atatürk'ün Samsun'a Çıkışının 100 yılında"

BOOK OF ABSTRACTS ([1,2])

BİLDİRİ ÖZETLERİ KİTAPÇIĞI ([1,2])

21-23 Haziran 2019

Yayına Hazırlayanlar

Dr. Öğr. Üyesi Fergan KARAER

Prof. Dr. Zeki AYTAÇ

Prof. Dr. H. Güray KUTBAY

ISBN: 978-9944-0226-0-6

Erişime Açıldığı Tarih 7.12.2019

1. Baskı

Adres: Ondokuz Mayıs Üniversitesi,
Kurupelit Yerleşkesi, Samsun / TÜRKİYE

http://bitkibiyolojisikongresi.omu.edu.tr/

Ondokuz Mayıs Üniversitesi -Flora araştırma Derneği

[1]**The legal responsibility of the published abstracts rests on their writers. No unauthorized copying, excluding partial quotations, may be made. (Yayımlanan yazıların hukuki sorumluluğu yazarlarına aittir. Normal alıntılar dışında izinsiz kullanılamaz).**

[2]Karaer, F., Kutbay, H.G. (2019, Haziran). Lokal Endemik *Polygonum samsunicum*'un Dünü, Bugünü, Yarını [Abs.]. 2nd International congress on plant biology book of abstracts. Oral presantation Karaer, F. Aytaç, Z. & Kutbay, H.G. (2019). (Edit.). Erişim adresi: http: bitkibiyolojisikongresi.omu.edu.tr/Samsun.

2 nd INTERNATIONAL CONGRESS ON PLANT BIOLOGY 20-23 JUNE 2019
ONDOKUZ MAYIS UNIVERSITY - FLORA RESEARCHES ASSOCIATION/ SAMSUN-TURKEY

D: 50

Investigation on the Total Phenolic and Flavonoid Amounts of Oak Cynipid Galls (Cynipini)

Musa AZMAZ[1], Özge KILINÇARSLAN AKSOY[2], Yusuf KATILMIŞ[2], Ramazan MAMMADOV[2]

[1]Pamukkale University, Acıpayam Vocational High School, Department of Veterinary, Laborant & Veterinary Health Program Türkiye

[2]Pamukkale University, Faculty of Arts & Science, Department of Biology Türkiye /musazmaz@pau.edu.tr, oklncrsln@gmail.comykatilmis@pau.edu.tr, rmammad@yahoo.com

Abstract:

Introduction: The cynipid species belonging to tribe *Cynipini* Leach (Hymenoptera: Cynipidae) are known as oak gall wasps. The oak gall wasps are by far the most species-rich group of gall wasps, with about 1000 known species worldwide. The majority of oak cynipids induce galls on oak trees (*Quercus* L.). It is known that the galls generally have the highest antioxidant activity. The high antioxidant capacity of the oak galls related to high concentration of bioactive components (phenolic and flavonoid) in the gall. So, in this study our aim is to determine total phenolic and flavonoid amounts of some oak galls.

Materials and Methods: The galls are collected from Eastern Black Sea Region, Turkey between 2017 and 2018. The gall extracts are prepared with solvents (ethanol, methanol, acetone, water). Total phenolic and total flavonoid amounts of cynipid galls (*Andricus kollari* Hartig, *A. mitratus* Mayr, *A. polycerus* Giraud, *Cynips quercusfolii* L.) were carried out respectively, Folin-Ciocalteu method and the aluminium chloride colorimetric method.

Results and Discussion: The results showed that the amounts of total phenolic and flavonoid in extracts of the galls on lateral buds of shoots (*A. kollari*, A. mitratus and *A. polycerus*) were higher than in the extracts of the leaf gall (*C. quercusfolii*). The gall samples on lateral buds of shoots showed the highest total phenolic amounts, respectively *A. polycerus* methanol (283.31±10.95 mgGAE/g), *A. kollari* acetone (249.35±18.59 mgGAE/g) and *A. mitratus* water (186.85±5.24 mgGAE/g) while the extracts of *C. quercusfolii* showed the lowest amounts (ranged from 64.98 to 167.69 mgGAE/g) generally. Similar to phenolic amounts, the galls on lateral buds of shoots have high flavonoid amounts, respectively *A. mitratus* water (117.35±1.86 mgQE/g), *A. polycerus* acetone (108.85±3.37 mgQE/g) and *A. kollari* water (73.85±1.08 mgQE/g) rather than the leaf gall (C. quercusfolii) extracts (ranged from 9.09 to 13.05 mgQE/g). Bioactive components (like phenolic, flavonoid) are abundant in gall tissue and have multiple biological effects. For this reason, the determination of bioactive components in galls is very important in understanding their pharmacological properties and medicinal values.

Keywords: Cynipidae, phenolic, flavonoid, amount, gall.

Acknowledgements: This study was supported as financial by The Scientific and Technological Research Council of Turkey (TÜBİTAK Project No: 117Z096).