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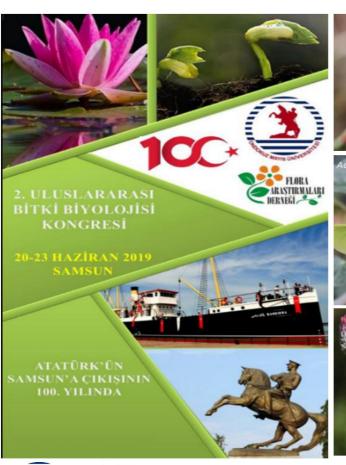
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"100 Years of Atatürk's Departure to Samsun"
ULUSLARARASI BİTKİ BİYOLOJİSİ
KONGOLGİ

KONGRESİ "Atatürk'ün Samsun'a Çıkışının 100 yılında"

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BOOK OF ABSTRACTS BİLDİRİ ÖZETLERİ KİTAPÇIĞI











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

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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.

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