derness, but less amount of ash (3.91 pct., $p<0.05$) and proteins (0.66 pct., $p<0.05$).

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IN VITRO ANTIOXIDANT ACTIVITY OF VARIOUS EXTRACTS OF WHOLE PLANT OF*CONVOLVULUS PHRYGIUS BORNM.*, ENDEMIC TO TURKEY

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Turkey has for several reasons such as it is the meeting place of three phytogeographical regions (the Euro- Siberian, Mediterranean and Irano-Turanian regions), Anatolia forms a bridge between Southern Europe and the flora of South-West Asia, many genera and sections have their centre of diversity in Anatolia and species endemism is high, a particularly interesting flora. Therefore, the flora of Turkey there are more than 9000 plant species and about 3000 are endemic[1].

Convolvulus is a genus of approximately 250 species of flowering plants in the Convolvulaceae family, commonly known as bindweeds, some of which occur in Mediterranean regions [2]. In Turkey, this genus is represented with 33 species, 9 of which are endemic [1].

In this study, antioxidant activities of various solvent extracts (methanol, ethanol, acetone and benzene) obtained from aerial parts of Convolvulus phrygius were determined. Antioxidant properties of various extracts from C.phrygius were evaluated by using 2,2-diphenyl-1-picrylhydrazyl (DPPH) and β-carotene-linoleic acid assays. In addition, total phenolic con-

tents in all the extracts of C.phrygius were determined as gallic acid equivalents.

The concentrations of phenolic content in all extracts were expressed as gallic acid equivalents (GAEs), determined by using FCR [3]. The absorbance was read at 760 nm. Gallic acid was used as a standard for calibration curve. The total phenolic content of extracts was determined as gallic acid equivalent (mg GAE/g dried sample).

The DPPH is a stable free radical, which has been widely accepted as a tool for estimating free radical-scavenging activities of antioxidants. Free radical scavenging activity of the extracts was determined using the free radical DPPH [4]. 4 ml of the DPPH's 0.004% metanolic solution was mixed with 1 ml (0.2-1.0 mg) of the extracts, and their absorbances were measured at 517 nm after incubation for 30 min at room temperature. The absorbance value of the samples were evaluated against empty control group (containing all reagents except the test compound). BHT was used as a control.

In this assay, antioxidant capacity was determined by measuring the inhibition of the volatile organic compounds and the conjugated diene hydroperoxides arising from linoleic acid oxidation. A stock solution of β -carotene–linoleic acid mixture was prepared as follows: 0.5 mg β-carotene was dissolved in 1 ml of chloroform (HPLC grade), and 25 µl linoleic acid and 200 mg tween 20 were added. Chloroform was completely evaporated (42°C) using a vacuum evaporator. Then, 100 ml distilled water was added by vigorous shaking. 2500 µl of this reaction mixture were dispensed to test tubes and 350 µl portions of the extracts (2 g/L), were added and the emulsion system was incubated for up to 48 h at room temperature. The same procedure was repeated with synthetic antioxidant, BHT, as positive control, and a blank. After this incubation period, absorbances of the mixtures were measured at 470 nm. Antioxidant activity (AA) was measured in terms of successful bleaching of β-carotene by using a slightly modified version of the formula from Jayaprakasha et al. [5] and the absorbance was measured during 120 minutes.AA: [1- (A0-At / $A0^o$ - At^o)] x 100where A0 is the initial absorbance of the sample, At is the initial absorbance of the control, $A0^o$ is the sample's absorbance after 120 min, and At^o is the control's absorbance after 120 min.

We found that, the phenolic contents of the ethanolic extracts are higher than the other types of extracts. In methanol, ethanol, acetone and benzene extracts of C.phrygius, 11.82, 21.52, 10.10 and 10.91 mg gallic acid equivalent of phenols was detected. Extracts of several members of this genus, such as C. hystrix, C. althaeoides, C. pluricaulis, C. fatmensis and C.

arvensis have been reported to exhibit antioxidant activity, which was correlated to their phenolic content.

Among all the extracts, the ethanolic extracts of C.phrygius showed the highest antioxidant activity (55.41 ± 3.06%) followed by methanolic (50.35 ± 3.01%) >acetonic (30.58 ± 2.09%)> benzenic (28.71 ± 5.03%). The reason of the same plant's extracts showing different antioxidant activity may be due to the polarities of the solvents.

The highest free radical scavenging activity (53.28 ± 0.51%) was recorded on the ethanolic extracts of C.phrygius,extracted with 1 mg/ml concentration. The following free radical scavenging activities were determined as: methanolic (50,02 ± 3,11%), acetonic (24,53 ± 2,60%) and benzenic (24.08 ± 4.02%).

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DSC STUDIES OF SOLID COMPLEXES BETWEEN CYCLODEXTRINS AND FLAVONOIDS

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Cyclodextrins (CDs) − a cyclic oligosaccharides contain mostly six (CD), seven (CD) or eight (CD) glucose residues − have a relatively nonpolar cylindrical cavity, which can bind and solublize a wide variety of hydrophobic molecules like flavonoids for example quercetin and rutin. Quercetin is a flavonoid widely distributed in nature. It is a naturally-occurring polar auxin transport inhibitor, a plant-derived flavonoid found in fruits, vegetables, leaves and grains. It also may be used as an ingredient in supplements, beverages or foods. Rutin, also called rutoside is the glycoside