Antiproliferative Properties and Chemical Components of Endemic
*Cephalaria elazigensis* var. *purpurea*

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**Introduction:** Cephalaria is a genus belonging to the family Caprifoliaceae. The genus contains 41 taxa in Turkey. Endemic *Cephalaria elazigensis* is erect perennial herbs. Stem simple or branched from base, up to 1 m, minute stellate hairs in lower and middle part, glabrous in upper part. Leaves coriaceous, simple, serrate or entire margin, subpungent at apex; lower leaves lanceolate, petiolate, cauline leaves similar to lower leaves, lanceolate, but short petiolate upper leaves linear or linear-lanceolate, sessile, Capitula ovoid or ovoid-subglobose, 1–1.75 cm in diameter in flower, 1–1.5 mm in diameter in fruit. *C. elazigensis* includes 2 varieties: var. *elazigensis*, var. *purpurea*. *C. elazigensis* var. *purpurea* was collected from Elazig province. A taxonomic revision of the genus Cephalaria (Caprifoliaceae) in Turkey used to identification the plant samples. Plant samples were deposited at the herbarium of Bingol University. Literature data obviously showed that this genus contain many compounds which have used for different areas from medicine to agriculture because of their biological activities.

**Materials and Methods:** This study is aimed to investigate the anticancer potential and chemical components of endemic *C. elazigensis* var. *purpurea*. A549 non-small cell lung cancer and MCF-7 breast cancer cell lines were used for detect the cytotoxic effect of extract by MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-dipheny ltetrazolium bromide) assay. The morphological changes in the cells were examined under a fluorescence attachment microscope using propidium iodide and acridine orange dye. The chemical component analysis of the extract was performed using a gas chromatography–mass spectrometry (GC–MS) Agilent 5975C series GC/MSD with Triple-Axis HED-EM detector (Agilent Technology Inc., Santa Clara, CA, USA), equipped with HP-5 MS capillary column packed with fused silica (30 m×0.25 mm i.d., 0.25 μm film thicknesses) and interfaced with a HP chemstation.

**Results:** In A549 and MCF-7 cells, which treated with 1000 μg/ml ethanol extract of *C. elazigensis* var. *purpurea* inhibition rate was 74.1% and 80.8% compared with control group, respectively. Also it was observed that a significant amount of cells treated with the extract were morphologically apoptotic (p<0.05). The major compounds in the extract were α-copaene and germacrene D.

**Conclusion:** Plants, especially endemic plants, can provide an important potential for fighting cancer due to their bioactive compound contents. Thus, compounds obtained from plants can be used in the treatment of many diseases such as cancer.

**Key words:** MCF-7, antiproliferative, GC/MS, extract, plant.