Letter of Acceptance

Dear MEHMET KADİR ERDOĞAN, Hakan AŞKIN, Lütfi BEHÇET, İbrahim Halil GEÇİBESLER

We are pleased to inform you that your paper entitled as ESSENTIAL OIL COMPOSITION, ANTIOXIDANT ACTIVITY AND ANTI-PROLIFERATIVE EFFECT OF A NEW SPECIES: PARACARYUM BINGOELIANUM has been accepted for POSTER PRESENTATION at the 1st INTERNATIONAL CONGRESS ON MEDICINAL AND AROMATIC PLANTS “NATURAL AND HEALTHY LIFE” to be held in Konya/Turkey, on 10-12 May 2017.

Prof. Dr. Selman Türker
On the behalf of TABKON’17 Organizing Committee
Chair of Congress
Essential oil composition, antioxidant activity and anti-proliferative effect of a new species: *Paracaryum bingoelianum*

Mehmet Kadir Erdoğan1, Hakan Aşkın2, Lütfi Behçet3, İbrahim Halil Geçibesler4

1Department of Biology, Faculty of Arts and Sciences, Bingol University, 12000, Bingol, Turkey
2Department of Molecular Biology and Genetics, Faculty of Sciences, Ataturk University, 25240, Erzurum, Turkey
3Department of Biology, Faculty of Arts and Sciences, Bingol University, 12000, Bingol, Turkey
4Laboratory of Natural Product Research, Faculty of Health Science, Bingol University, 12000, Bingol, Turkey

The plants have been used for a long time in the treatment of many diseases. Dietary and medicinal herbs contain many natural phytochemicals such as phenolics and flavonoids, and they have antioxidant, anti-inflammatory, anti-proliferative and apoptotic effects. There is a huge interest to uncover the valuable compounds and medicinal characteristic of herbs. The genus *Paracaryum* (DC) Boiss. belongs to Boraginaceae family.

In this study, the essential oil composition, antioxidant, anti-proliferative and apoptotic effects of *Paracaryum bingoelianum* were investigated. *Paracaryum bingoelianum* was collected in 2014, in Bingol, Turkey. The essential oil of *P. bingoelianum* was obtained by hydrodistillation method and chemical composition of plant was analyzed by HS-SPME/GC-MS. The antioxidant capacity of essential oil from *P. bingoelianum* was determined by different in vitro assays (DPPH radical scavenging activity, reducing power and ferric thiocyanate methods). BHA, BHT, vit. E and vit. C were used to compare the antioxidant assay results. Anti-proliferative activity was examined by MTT (3-[4,5-dimethylthiazol-2-yl]-2,5 diphenyl tetrazolium bromide) assay on human colorectal adenocarcinoma cell line (HT-29). Cell death detection Elisa assay was used to detect the apoptotic effect.

Thirty six compounds were totally identified, which representing 93.38% of the oil. Among them 6,10,14-trimethyl-2-pentadecanone (17.2%), eucalyptol (9.53%) and trans-2-hexanal (8.94%) were the major compounds. At highest concentration the DPPH radical scavenging activity of essential oil (EO) was close to vit. C (vit. E > vit. C > EO). Essential oil showed lower reducing power than BHT and BHA. Ferric thiocyanate assays result was following order; BHT > BHA > EO. Essential oil of *P. bingoelianum* reduced HT-29 cell proliferation and induced apoptosis. The inhibition of viability of HT-29 colorectal adenocarcinoma cell line treated with 600 µg/ml EO was 56.7%. IC50 value was determined as 473.2 µg/ml. When HT-29 cells treated with IC50 value of EO, apoptosis rate was higher 4.1 fold than untreated cells (p<0.05)

The findings clearly indicate that *P. bingoelianum* has a lot of chemical compounds and present antioxidant, anti-proliferative and apoptotic activities in different experiment systems. Further in vivo explorations are needed to illuminate this plants medicinal usage.

**Key words:** Essential oil, antioxidant activity, *Paracaryum*, cell culture, apoptosis.