PA–012

**Determination of Metal Concentration, Phenolic Compounds, Antioxidant and Antimicrobial Activity of Five Mushroom Species from South East Region, Turkey**

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**Objectives:** In this study, methanol extract of five mushroom species (*Amanita fulva*, *Helvella queletii*, *Helvella leucopus*, *Coriolus versicolor* and *Pleurotus ostreatus*), which were collected from South-East region of Turkey, were studied to determine the phenolic compositions, metal analysis, antioxidant and antimicrobial activities.

**Materials and Methods:** The antioxidant capacities of methanol extracts of mushrooms were applied using different antioxidant tests, including reducing power, free radical scavenging, total antioxidant activities, superoxide anion radical scavenging, and metal chelating activities. Phenolic profile of studied mushrooms were determined by high-performance liquid chromatography (HPLC) and metal analysis was performed by an inductively coupled plasma optical emission spectrometry (ICP-OES).

**Results:** Methanol extracts of mushrooms exhibited antimicrobial activity against all tested microorganisms. *C. versicolor* showed the highest inhibitory activity against *Staphylococcus aureus* (18 mm, inhibition zone diameter). Generally *A. fulva* and *P. ostreatus* exhibited slightly higher antioxidant activity than other studied mushrooms but the antioxidant activities of the extracts was close to each other. Potassium (K) was the most abundant metal in all studied mushrooms. Highest concentration of K obtained from *H. queletii* (35899 mg/kg). Only catechin was present in all studied mushrooms.

**Conclusions:** The results showed us that methanol extracts of all studied mushroom species could be used as a potential source of natural antioxidant, as a possible food supplement or in pharmaceutical industry. Additionally the heavy metal amounts of all studied mushroom are below the maximum allowed concentration.

**Keywords:** Antioxidant; antimicrobial; mushroom; phenolic compounds; metal concentration; HPLC

**Acknowledgements:** This study financially supported by Scientific Research Unit of Siirt University, Project no. 2011-SIUFED-F5.