Abstract

Turkish Endemic *Achillea* Species Protect Human Neuroblastoma SH-SY5Y Cells Against Hydrogen Peroxide-Induced Cytotoxicity [†]

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Abstract: The genus *Achillea* L. belongs to Asteraceae (Compositae), the largest family of vascular plants. There are 50 species, which of 24 is endemic in this genus in Turkey. *Achillae* species are used as a tonic, anti-inflammatory, anti-spasmodic, diaphoretic, diuretic and emmenagogic agents and have been used for treatment of hemorrhage, pneumonia, rheumatic pain and wounds healing traditionally. The imbalanced antioxidant systems leads to various pathophysiological conditions such as inflammation, neurodegenerative diseases and cancer. *Achillea* species have several components; essential oils, sesquiterpenes and phenolic compounds such as flavonoids and phenolic acids. Phenolic compounds and flavonoids are the most important medicinal metabolites of *Achillea* species. Flavonoids have been reported to exert a wide range of biological activities including anti-inflammatory, antioxidant and anti-tumor effects. This study aimed to assess the in vitro antioxidant properties of the methanol extracts from the aerial parts of *A. cucullata* (ACME) and *A. sieheana* (ASME) against hydrogen peroxide (H₂O₂)-induced oxidative stress in human SH-SY5Y neuronal cells. Our study showed that the ACME and ASME provided neuroprotection against H₂O₂-induced oxidative stress. In conclusion, ACME and ASME might help in reducing oxidative stress for preventive therapy associated with neurodegenerative diseases and cancer.

Keywords: *Achillea sieheana*; *Achillea cucullata*; cancer prevention; hydrogen peroxide

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