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## Secondary metabolic profile of 14 *Achillea* species by LC-MS/MS, LC-MS IT-TOF and investigation of their biological activities

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In this study, major secondary metabolites of 14 different *Achillea* species that belong to Asteraceae family were determined by LC-MS/MS and LC-MS IT-TOF instruments. Also antioxidant and anticancer properties of these species were investigated. The studied species were taxonomically identified, dried and their overground and underground parts were separated. The secondary metabolic profiles of the chloroform-methanol (1:1) extracts of the species were determined qualitatively by UHPLC-ESI-IT-TOF MS instrument and 89 metabolites were identified in studied *Achillea* species. By developing and validating a comprehensive LC-MS/MS method, 37 phytochemicals of chloroform-methanol (1:1) and ethanol extracts of the species were analysed qualitatively and quantitatively. Additionally, the antioxidant activities of the studied species were determined by using DPPH free radical scavenging assay, ABTS radical cation decolorization assay,  $\beta$ -carotene lipid peroxidation test system and CUPRAC copper reduction capacity methods. Moreover, total phenolic content and total flavonoid content of the studied species were investigated. Most importantly, the cytotoxic (anticancer) activities (on HeLa (Human Cervical Carcinoma Cell Line) of the chloroform-methanol extracts of the overground and underground parts of the 14 *Achillea* species were determined.

### Biography

Mustafa Abdullah Yilmaz is Assistant Professor at Dicle University, Faculty of Pharmacy, Diyarbakır, Turkey. He is also in charge of the mass spectrometry and chromatography unit in Dicle University Science and Technology Application and Research Center (DUBTAM). His research areas are (high resolution) mass spectrometry and chromatography (LC-MS/MS, GC-MS, LC-MS IT-TOF), plant metabolomics, analytical method validation etc. He has published 10 papers in reputed journals.

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