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Simultaneous determination of 37 phytochemicals in *Achillea* species by ultra high-performance liquid chromatography–triple quadrupole mass spectrometry

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In this study, secondary metabolic profile of ethanol extracts of 4 different *Achillea* species (*A. Arabica*, *A. santalinoides*, *A. vermicularis*) were determined using LC-MS/MS. A comprehensive LC-MS/MS method validation was developed for the qualitative and quantitative analysis of 37 phytochemicals including 15 phenolic acids, 17 flavonoids, 3 nonphenolic organic acids, 1 phenolic aldehyde and 1 penzopyrane. The analytes were quantified by a triple quadrupole mass spectrometer working in multiple reaction monitoring (MRM) mode. The fragmentation patterns of the studied compounds using ESI and collision-induced dissociation (CID) techniques are reported. The performance properties of the analytical method were determined by using standard solutions, spiked and non-spiked samples. Within the context of method validation, linearity, trueness (recovery), precision (repeatability and reproducibility, LOD and LOQ and expanded uncertainty (at 95% confidence level (k=2)) were determined. Afterwards, different parts of 4 different *Achillea* species were analysed and their phytochemical constituents were quantified by this method.

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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