

Article

An in-depth study on the metabolite profile and biological properties of *Primula auriculata* extracts: a fascinating sparkle on the way from nature to functional applications

İnci Kurt-Celep¹, Dimitrina Zheleva-Dimitrova², Reneta Gevrenova², Abdullahi Ibrahim Uba³, Gokhan Zengin^{4*}, Evren Yıldıztugay⁵, Carene Marie Nancy Picot-Allain⁶, José Manuel Lorenzo^{7,8}, Mohammad Fawzi Mahomoodally⁶, Domenico Montesano^{9*}

¹Yeditepe University, Faculty of Pharmacy, Department of Pharmacognosy, 34755, Ataşehir, Istanbul, Turkey, incikurt00@gmail.com (I.K.C)

²Department of Pharmacognosy, Faculty of Pharmacy, Medical University-Sofia, Sofia, Bulgaria, dimizheleva@gmail.com (D.Z); rgevrenova@gmail.com (R.G)

³Department of Molecular Biology and Genetics, Faculty of Engineering and Natural Sciences, Kadir Has University, Istanbul 34083, Turkey, abdullahi.iu2@gmail.com (A.I.U)

⁴Physiology and Biochemistry Research Laboratory, Department of Biology, Science Faculty, Selcuk University, Campus, 42130, Konya, Turkey, gokhanzengin@selcuk.edu.tr (G.Z)

⁵Department of Biotechnology, Science Faculty, Selcuk University, Campus, Konya, Turkey, eytugay@gmail.com (E.Y)

⁶Department of Health Sciences, Faculty of Medicine and Health Sciences, University of Mauritius, Réduit, Mauritius, picotcarene@gmail.com (C.M..N.P); f.mahomoodally@uom.ac.mu (M.F.M)

⁷Centro Tecnológico de la Carne de Galicia, Rúa Galicia N° 4, Parque Tecnológico de Galicia, San Cibrao das Viñas, 32900 Ourense, Spain, jmlorenzo@ceteca.net (J.M.L)

⁸Universidade de Vigo, Área de Tecnoloxía dos Alimentos, Facultade de Ciencias, 32004 Ourense, Spain

⁹Department of Pharmacy, University of Naples Federico II, via D. Montesano 49, 80131 Naples, Italy, domenico.montesano@unina.it (D.M)

* Correspondence: gokhanzengin@selcuk.edu.tr (Dr. Gokhan ZENGİN); domenico.montesano@unina.it (Dr. Domenico Montesano)

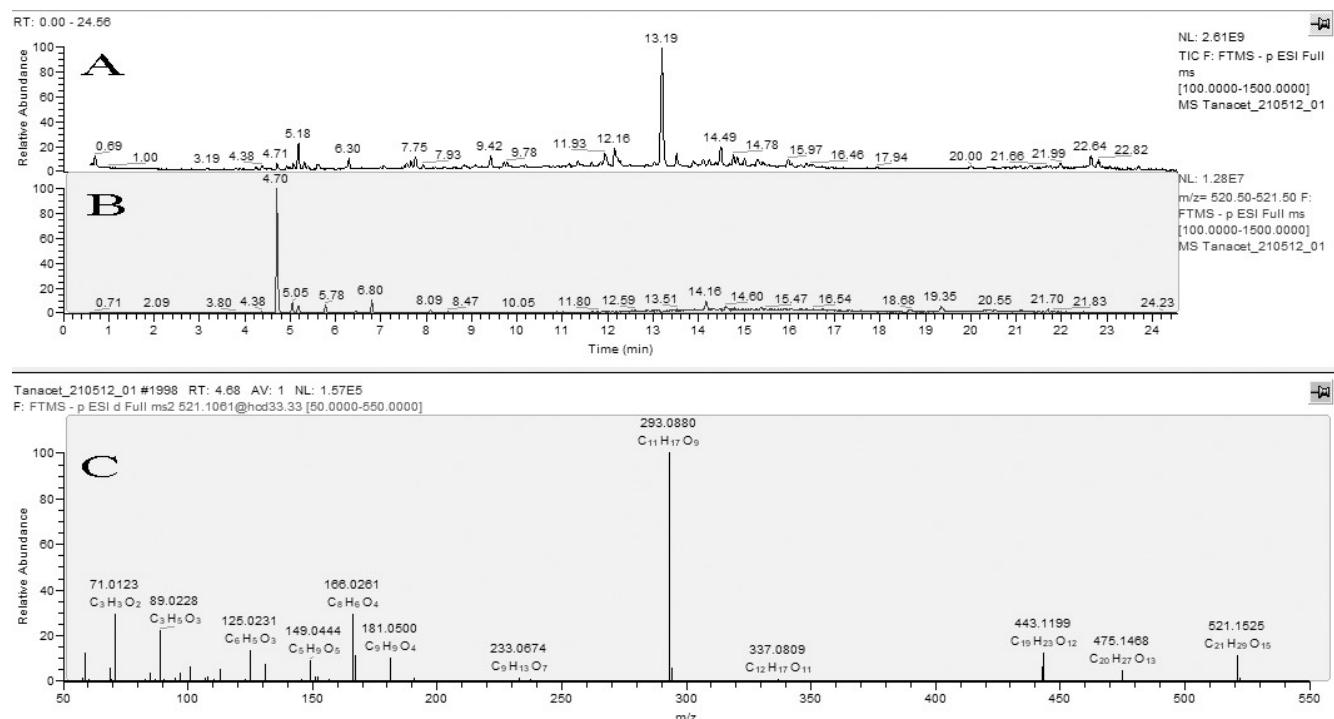


Figure S1. Total ion chromatogram of *P. auriculata* aerial parts ethyl acetate extract in negative ion mode (A), extracted ion chromatogram of compound 5 at m/z 475.1468 (B), and MS/MS fragmentation of compound 5 (C)

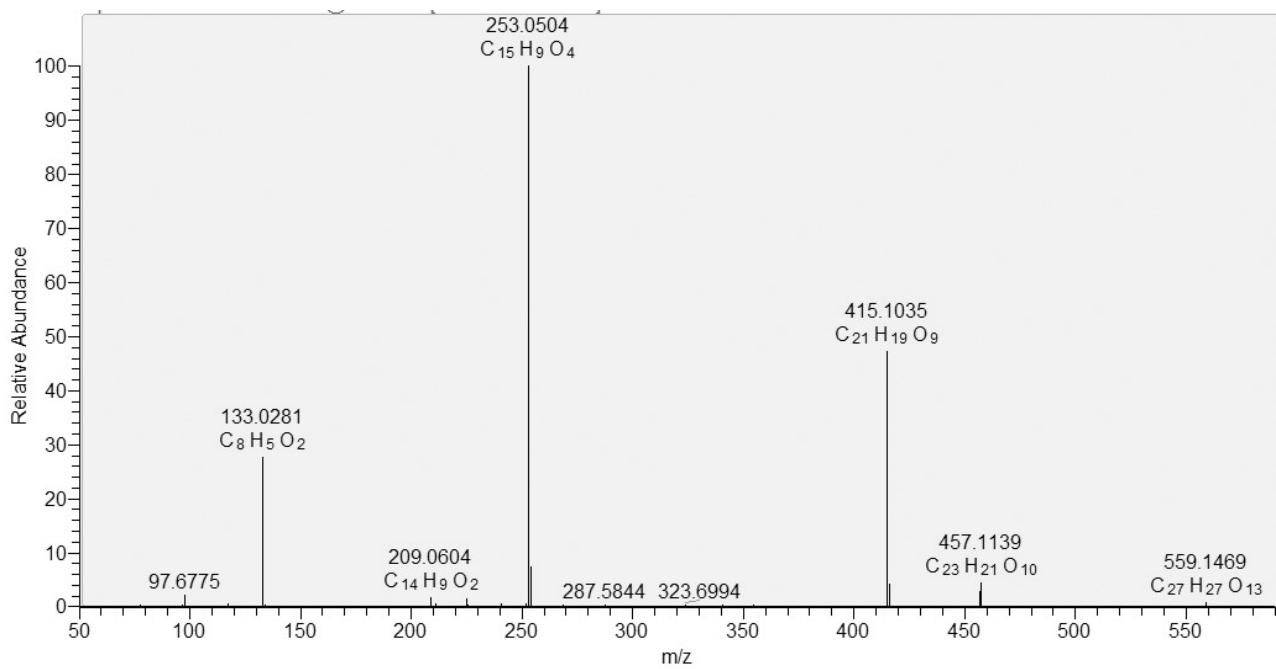


Figure S2. MS/MS spectrum of compound 32 at m/z 559.145

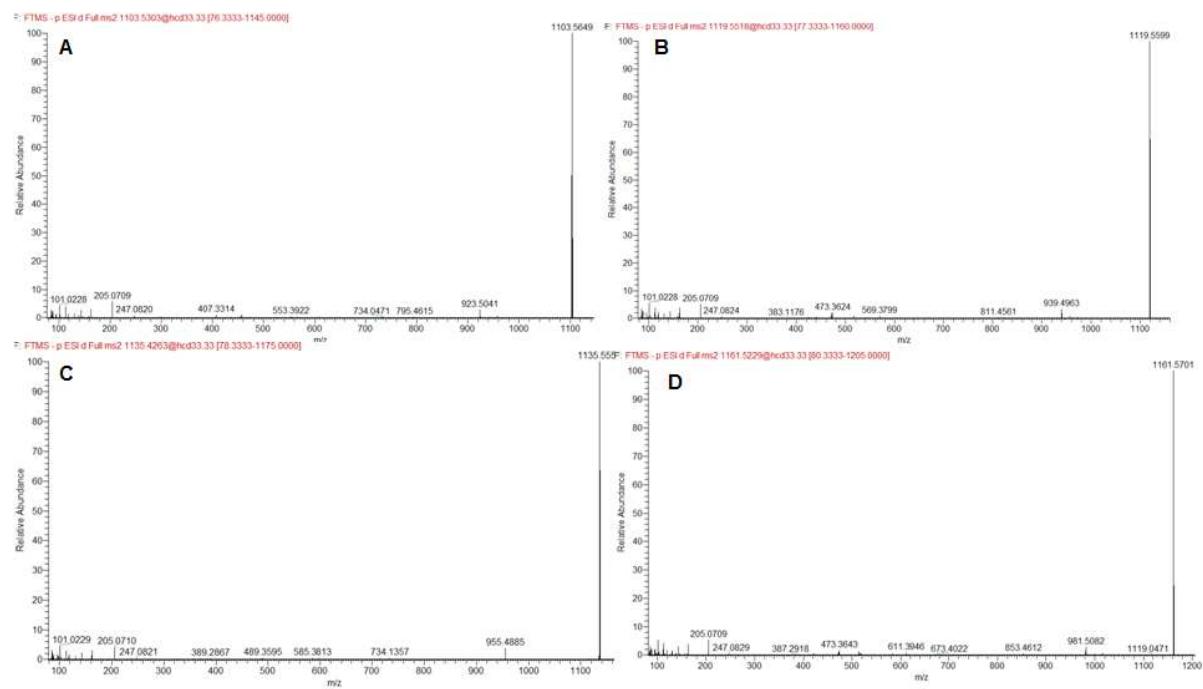


Figure S3. MS/MS spectra of *Primula auriculata* saponins at m/z 1103.565 (A); 1119.559 (B); 1135.555 (C); 1161.570 (D).

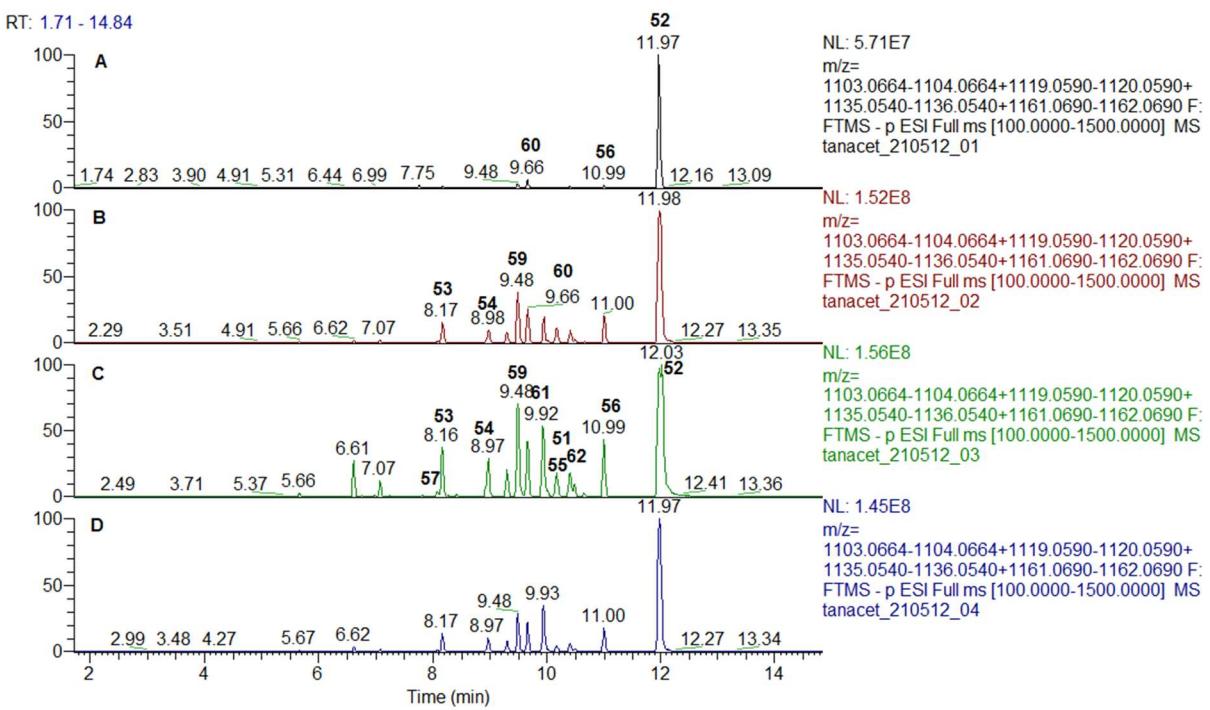


Figure S4. Extracted ion chromatograms of the assayed saponins in *Primula auriculata* aerial parts: ethylacetate extract (A); ethanol extract (B); ethanol/water extract (C); infusion extract (D)

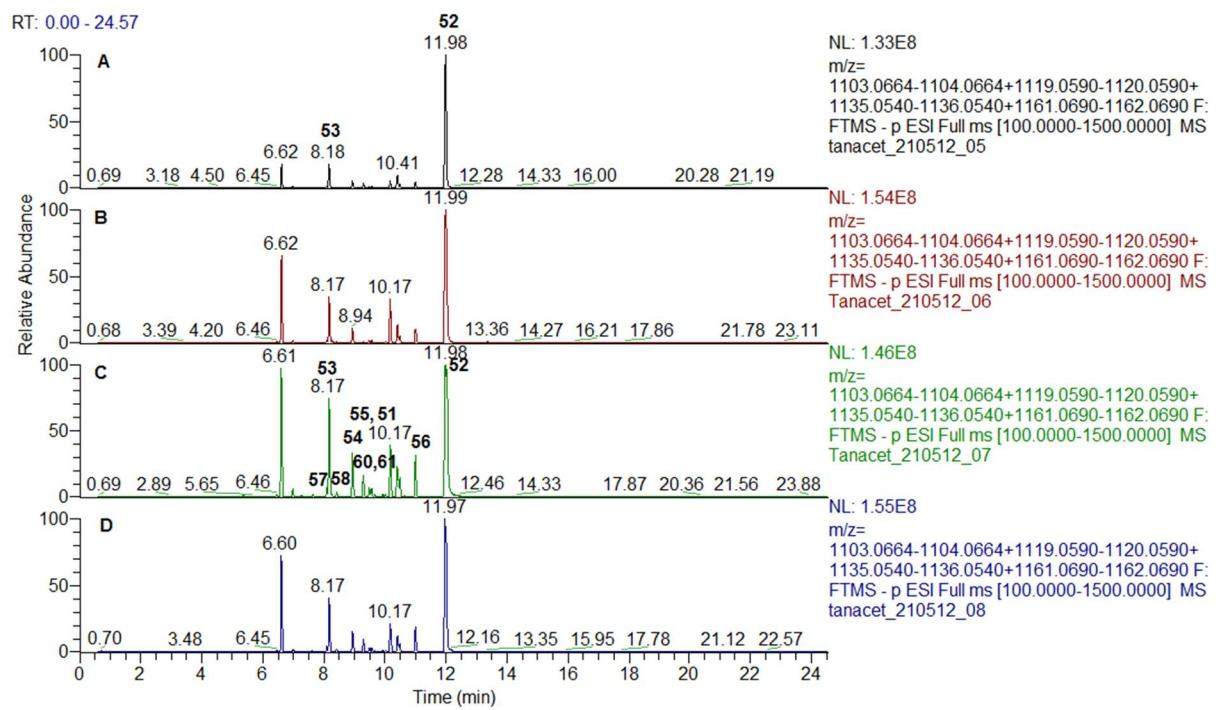


Figure S5. Extracted ion chromatograms of the assayed saponins in *Primula auriculata* roots: ethylacetate extract (A); ethanol extract (B); ethanol/water extract (C); infusion extract (D)