



Supplementary material

Antioxidant and Cytotoxic Potential of *Carlina vulgaris* Extract and Bioactivity-Guided Isolation of Cytotoxic Components

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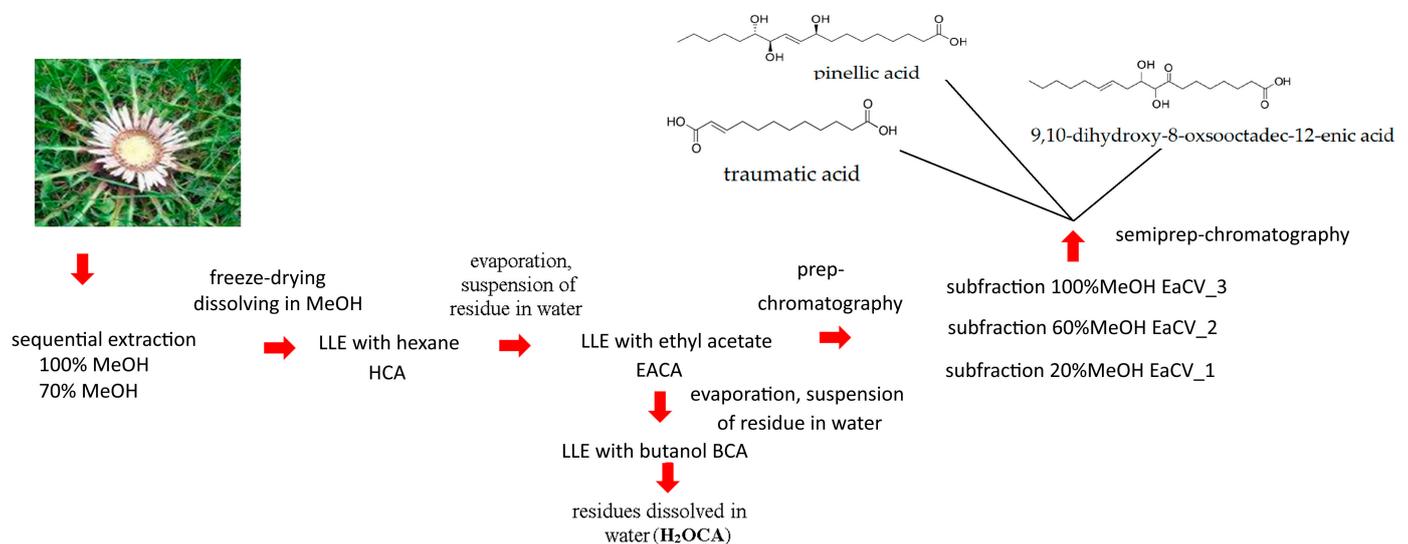
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Scheme S1. The schematic diagram of the extraction procedure.

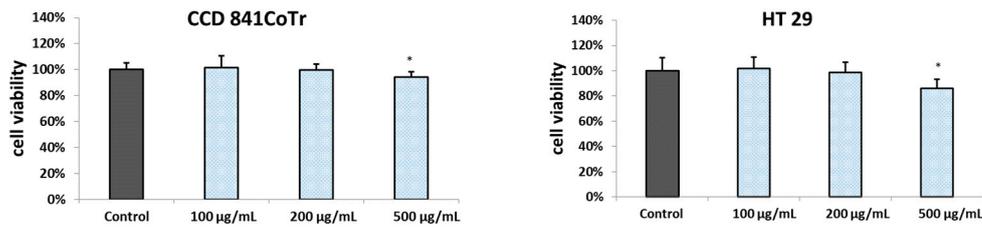


Figure S1. Effect of the different concentrations of extracts obtained from *Carlina vulgaris* on cell viability determined by the MTT assay and expressed as a % of control (0.5% of DMSO in medium). The data are means ($n = 3$) \pm SD. One-way ANOVA followed by Dunnett's post hoc test; the differences between samples and control were considered significant at $p < 0.05$. * indicates statistically significant difference.

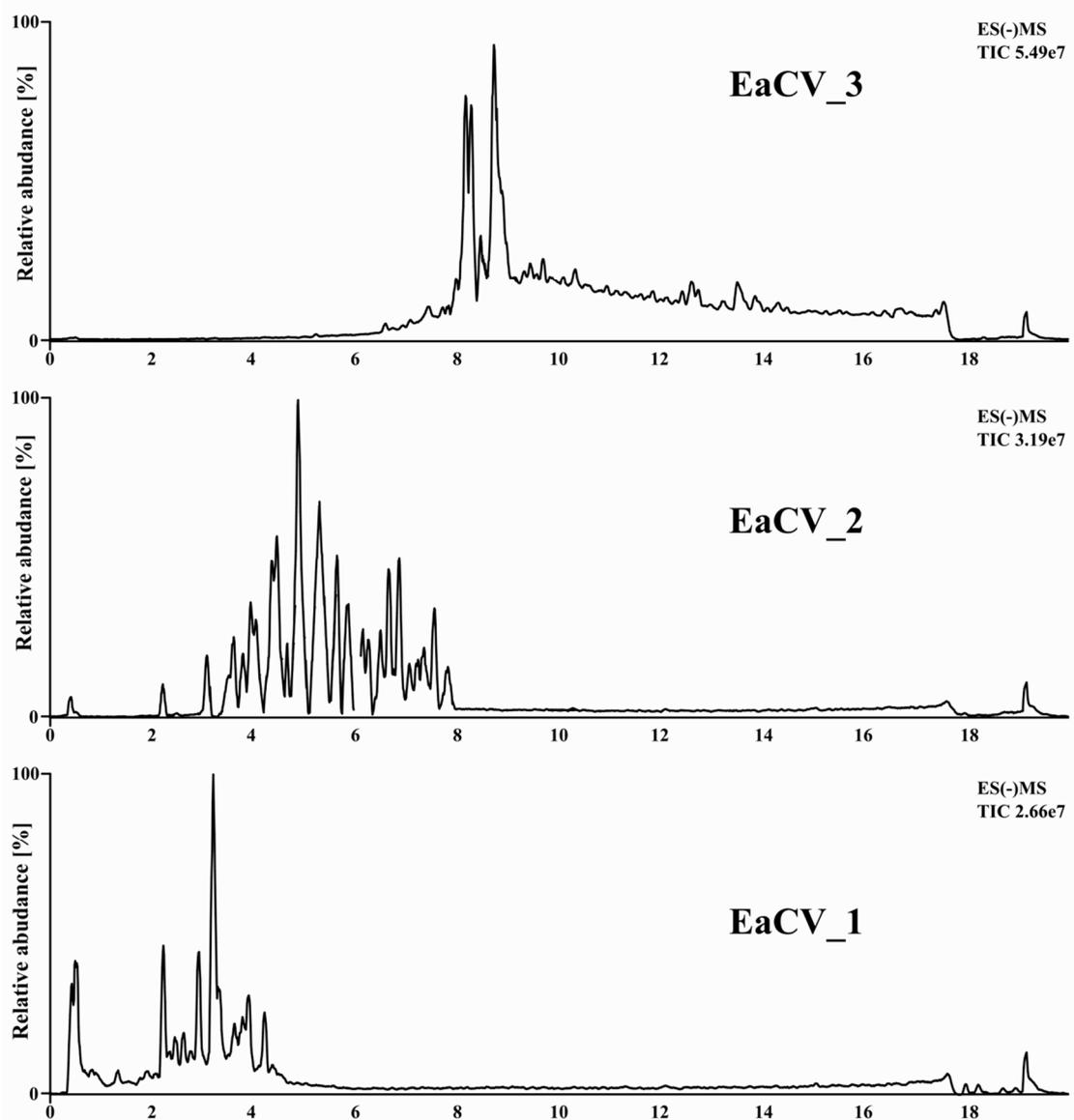


Figure S2. The UHPLC - ESI - MS(-) chromatograms sub-fractions from the extract of *C. vulgaris*.

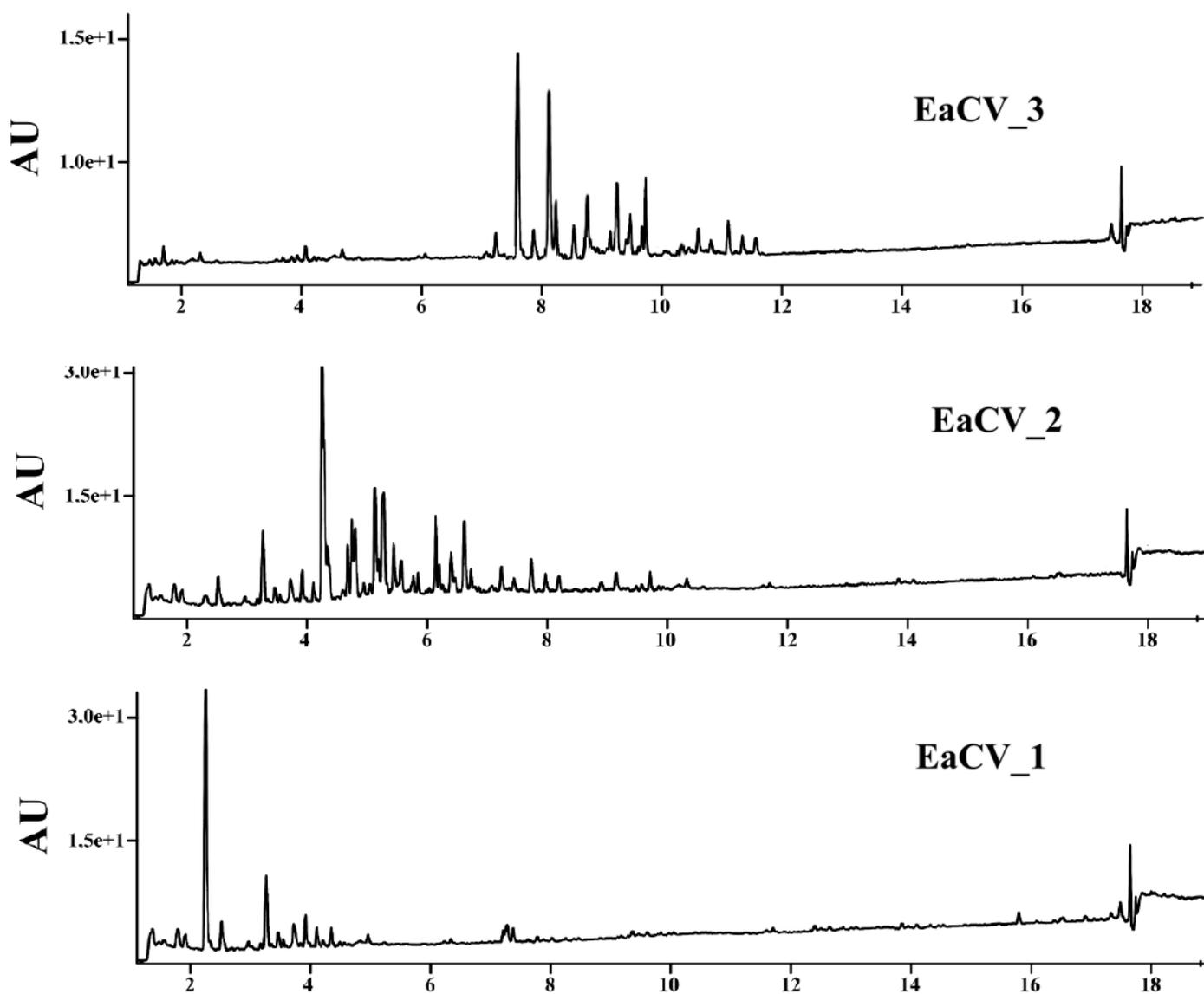


Figure S3. The UHPLC-DAD chromatograms sub-fractions from the extract of *C. vulgaris* obtained at wavelength of 254 nm.

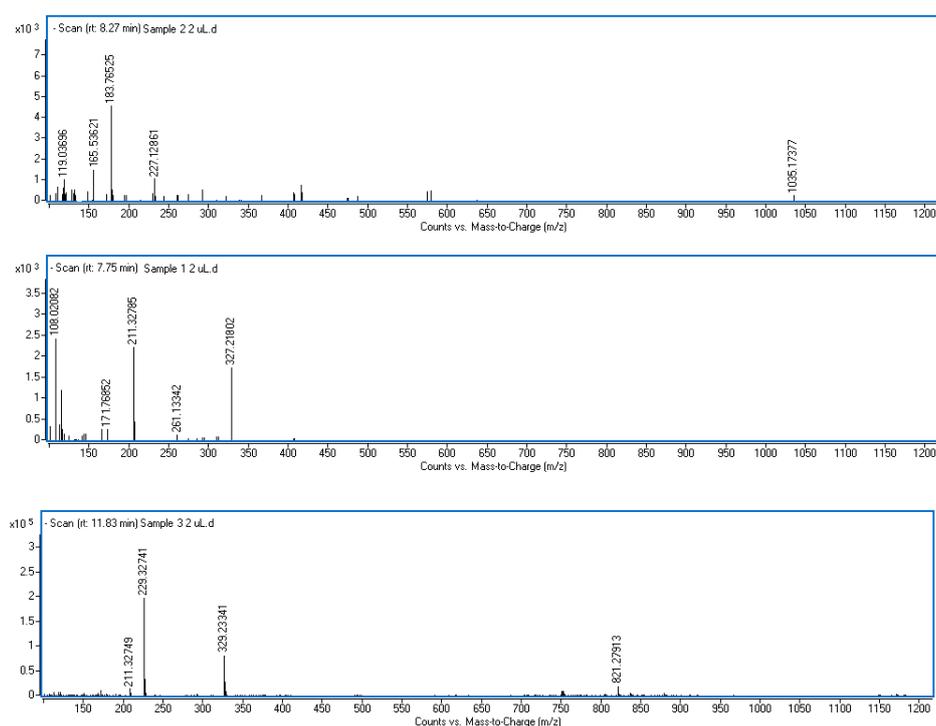


Figure S4. Exemplary MS spectra for target compounds (traumatic acid, 9,10-dihydroxy-8-oxooctadec-12-enic acid, pinellic acid).

Table S1. The results of radical scavenging activity (DPPH) and ferric reducing antioxidant power (FRAP) obtained for pinellic acid (PA), traumatic acid (TA) and 9,10-dihydroxy-8-oxooctadec-12-enic acid (MUA). Values are means \pm standard deviation (SD) of triplicate.

compound	concentration ($\mu\text{g/ml}$)	Equivalent of Trolox concentration (DPPH)	Equivalent of ascorbic acid concentration (DPPH)
PA	25	2.169 ± 0.204	0.405 ± 0.144
	100	2.588 ± 0.301	1.351 ± 0.144
	200	3.309 ± 0.845	2.500 ± 0.125
TA	25	0.797 ± 0.516	0.372 ± 0.096
	100	1.762 ± 0.381	1.554 ± 0.125
	200	2.030 ± 0.344	3.014 ± 0.125
MUA	25	0.623 ± 0.288	0.912 ± 0.304
	100	2.693 ± 0.418	3.581 ± 0.280
	200	4.030 ± 0.358	6.791 ± 0.201