Supporting Information

Rec. Nat. Prod. **9:4 (2015) 572-575**

Phytoconstituents and *in vitro* evaluation of antioxidant capacities of *Cotula cinerea* (Morocco) methanol extracts

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Reverse-phase analytical HPLC

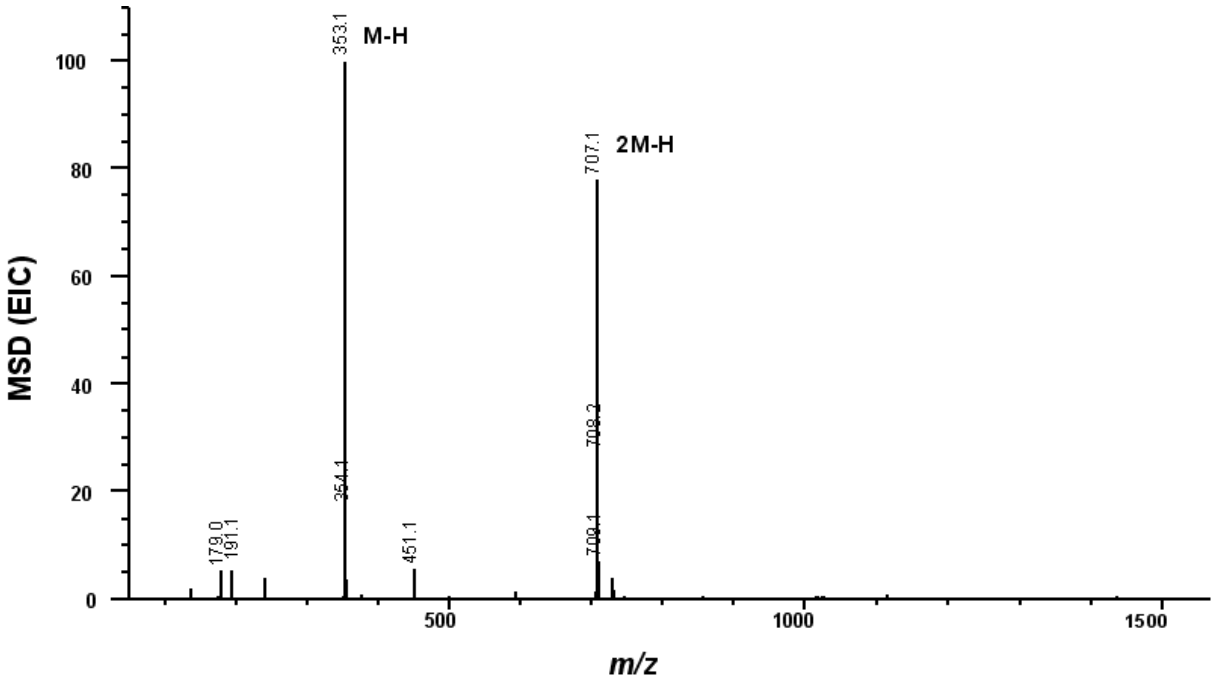
Analytical HPLC (was conducted on a Hewlett-Packard (HP) 1090 liquid chromatograph (Agilent Technologies, Waldbronn, Germany) fitted with a reverse-phase C18 Gemini column (250 mm, 4 mm i.d., 5 μm; Phenonenex, Aschaffenburg, Germany). Samples of *Cotula* extracts were dissolved in methanol (5.0 mL) and, when necessary, further diluted prior to injection (10 μL) into the HPLC. The mobile phase consisted of 2% acetic acid in water (solvent A) and acetonitrile (solvent B) with the following gradient profile: 95% A for 2 min; reduced to 75% A over 8 min; to 60% A over 10 min; to 50% A over 10 min; to 0% A over 5 min; continuing at 0% A until completion of the run. The flow rate of the mobile phase was 1.0 mL/min. Phenolic compounds in the eluant were detected at 278 and 340 nm with a diode-array UV detector (HP 1040M). Instrument control and data handling were performed with the HP Chemstation software on a PC.

Reverse-phase HPLC-ESI-MS

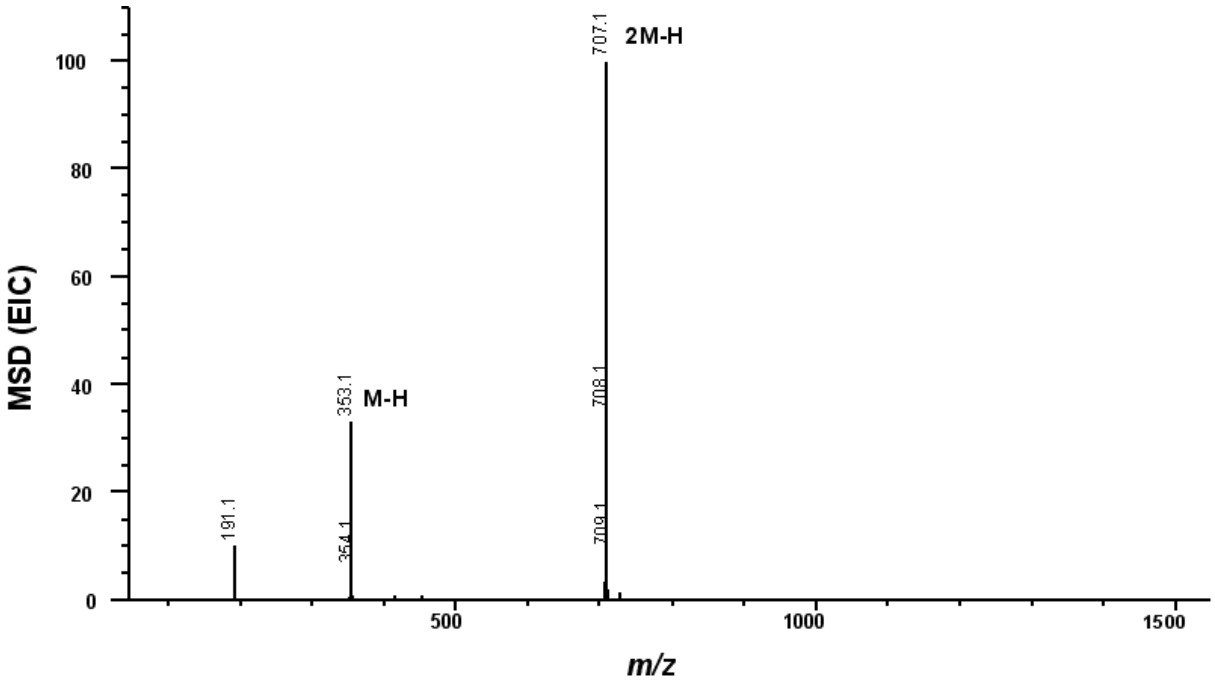
HPLC-ESI-MS was conducted on an Agilent 1100 HPLC, coupled to a HP 1101 single-quadrupole, mass-selective detector (Agilent Technologies, Waldbronn, Germany). The column used was a 250 mm × 4.5 mm i.d., 5 μm, RP-C18 with a 4 mm x 4 mm i.d. guard column of the same material (Phenomenex, Aschaffenburg, Germany). The mobile phase consisted of 2% acetic acid in water (solvent A) and acetonitrile (solvent B) with the following gradient profile: 95% A for 2 min; reduced to 75% A over 8 min; to 60% A over 10 min; to 50% A over 10 min; to 0% A over 5 min; continuing at 0% A until completion of the run. The flow rate of the mobile phase was 1.0 mL/minute. Volumes (10 μL) were injected into the HPLC, and phenolic compounds in the eluant were detected at 278 and 340 nm with a diode-array UV detector (HP 1040M). Mass spectra in negative-ion mode, were generated under the following conditions: fragmentor voltage, 100 V; capillary voltage, 2500 V; nebulizer pressure, 30 psi; drying gas temperature, 350 °C; mass range, 100-1500 Da. Instrument control and data handling were performed with the same software as for analytical HPLC.

Semi-preparative HPLC

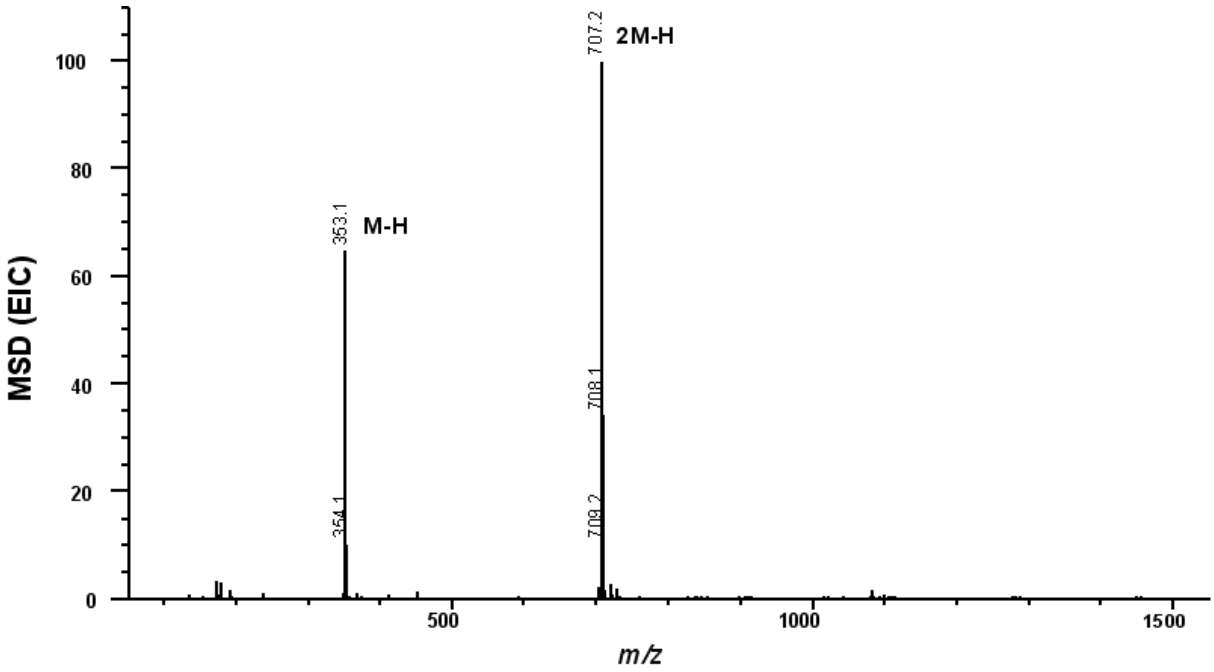
Semi-preparative HPLC was conducted on a HP 1100 liquid chromatograph (Agilent Technologies, Waldbronn, Germany) fitted with a C18 column (10 mm, i.d.) similar to that used for analytical HPLC. For the separation of individual compounds in the extracts, the mobile phase (3 mL/min) consisted of 0.2% acetic acid in distilled water (solvent A) and acetonitrile (solvent B), utilizing the following solvent gradient profile over a total run time of 50 min: initially 95% A for 1 min; reduced to 90% A over 9 min; to 85% A over 10 min; to 80% A over 10 min; to 0% A over 5 min and continuing at 0% A until completion of the run. Peaks eluting from the column were collected on a HP 220 microplate sampler and subsequently lyophilized.



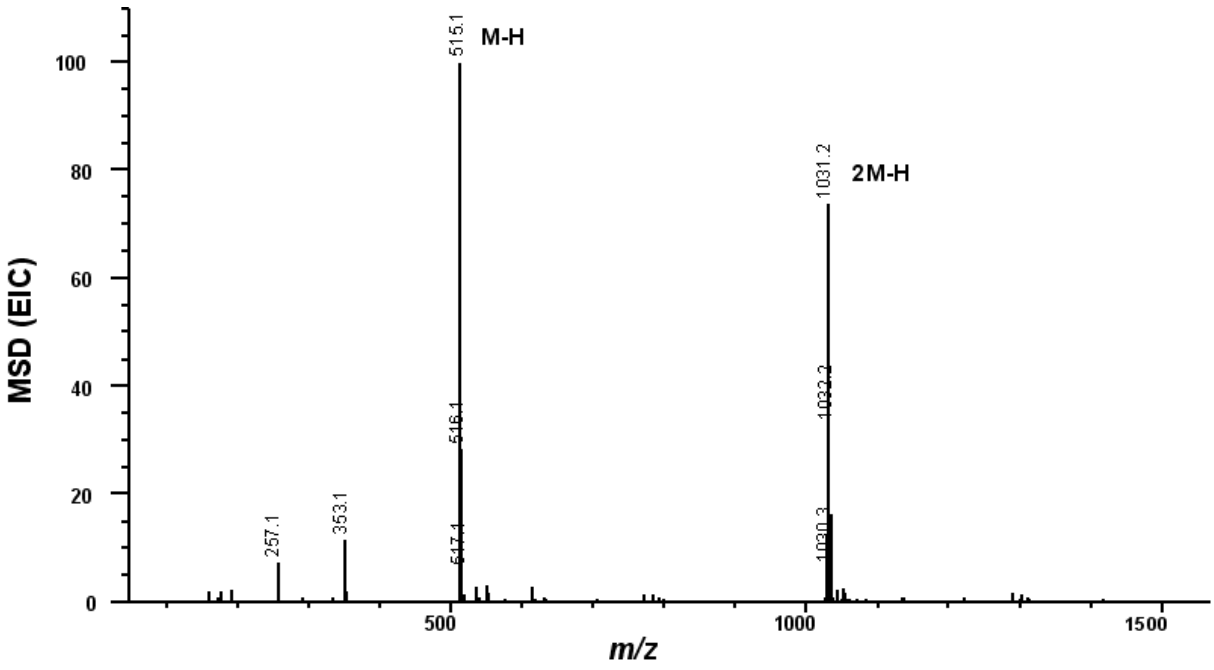
S1: HPLC-ESI-MS of neochlorogenic acid in negative-ion mode



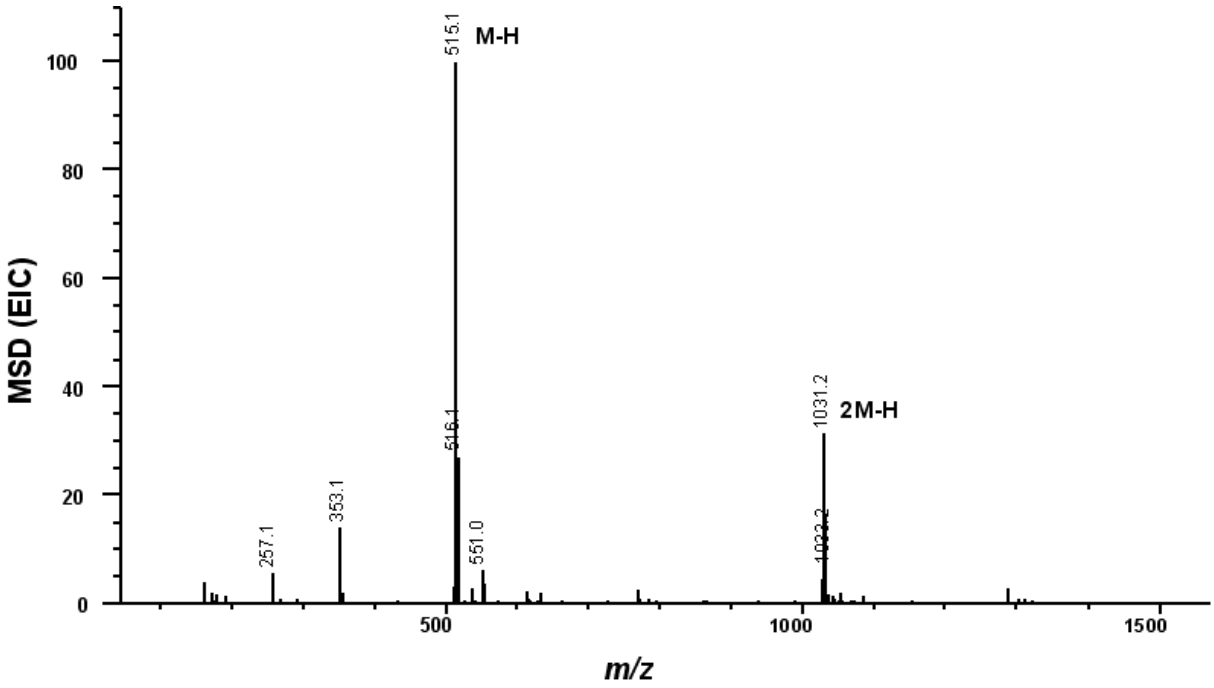
S2: HPLC-ESI-MS of chlorogenic acid in negative-ion mode



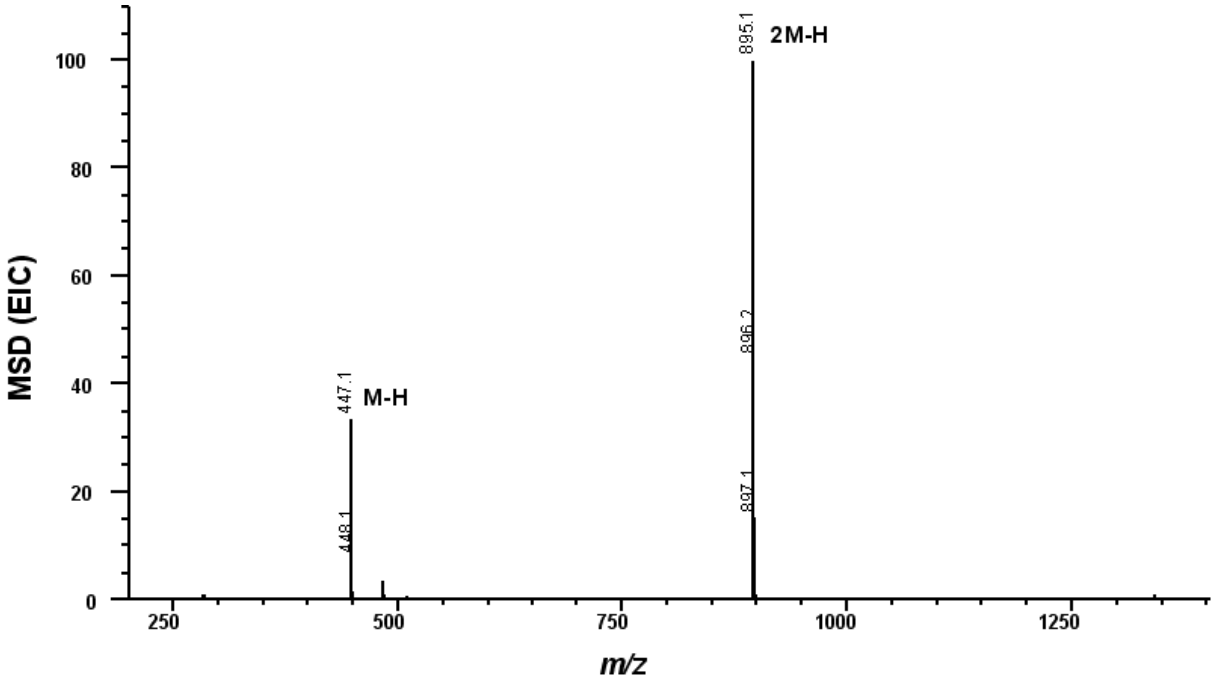
S3: HPLC-ESI-MS of cryptochlorogenic acid in negative-ion mode



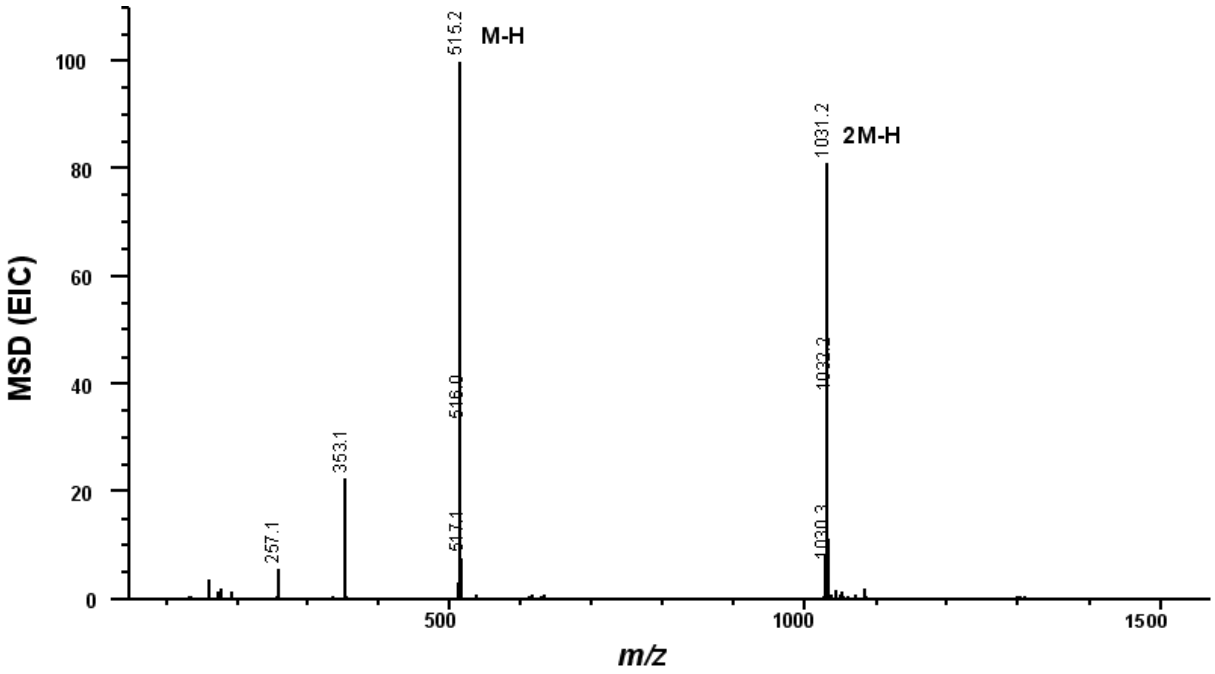
S4: HPLC-ESI-MS of 3,4-dicaffeoylquinic acid in negative-ion mode



S5: HPLC-ESI-MS of 3,5-dicaffeoylquinic acid in negative-ion mode



S6: HPLC-ESI-MS of Luteolin-4′-*O*-glucoside in negative-ion mode



S7: HPLC-ESI-MS of 4,5-dicaffeoylquinic acid in negative-ion mode