



## Phytochemical investigation of acetone extraction of *Echinophora cinerea* aerial parts

Z. Jelodarian<sup>1</sup>, M. Mansourian<sup>1</sup>, Y. Shokoohinia<sup>2\*</sup>

<sup>1</sup>Student Research Committee, School of Pharmacy, Kermanshah University of Medical Sciences, Kermanshah, Iran.

<sup>2</sup>Pharmaceutical Sciences Research Center, School of Pharmacy, Kermanshah University of Medical Sciences, Kermanshah, Iran.

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**Background and objectives:** *Echinophora cinerea* belongs to Apiaceae family and its aerial parts are used as vegetables and for seasoning yoghurt and cheese, and for treatment of digestive disorders in Chahar Mahal and Bakhtiari province, Iran. Despite its traditional use about dietary and pharmacological studies (approximately 13 *in vivo*, *in vitro* and clinical researches) on *Echinophora cinerea*, no attempt has been made to isolate secondary metabolites of the non-polar (acetone) extract. Phytochemical investigations seem to be necessary to use this plant in a better manner. **Methods:** Powdered aerial parts of the plant were extracted with acetone by maceration method. The concentrated extract was fractionated using reverse phase column chromatography on RP-18 sorbent using mixture of methanol and water as solvent system with decreasing polarity. The resulting fractions were analyzed by NMR and promising fractions were re-fractionated and purified using normal phase column chromatography and reversed and normal phase preparative HPLC analyses and structures of pure compounds were determined by one-dimensional NMR spectroscopy techniques, two-dimensional (including COSY, HSQC, HMBC and NOESY spectra) and mass analysis. **Results:** After extraction, column chromatography and HPLC purification of acetone extract, three novel skeleton polyacetylene compounds (echinophorin A-C) (compounds 1-3), one verbenone glycoside (verbenone-5-*O*- $\beta$ -D-glucopyranoside) (4), one phenylated coumarin (osthole) (5) were identified. **Conclusion:** Regarding novel skeleton bearing constituents in *Echinophora cinerea*, this plant could be a good source of potential medicinal natural products. Considering the fact that polyacetylenes and monoterpene glycosides are natural antidiabetic and protective compounds, this plant could be utilized as an antioxidant and antidiabetic agent.

**Keywords:** acetone extract, *Echinophora cinerea*, osthole, polyacetylene, verbenone-5-*O*- $\beta$ -D-glucopyranoside

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