5th Symposium of Young Researchers on Pharmacognosy

Szeged, 23 July 2024

BOOK OF ABSTRACTS

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Institute of Pharmacognosy

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(ed. Tivadar Kiss, Judit Hohmann)

Institute of Pharmacognosy, University of Szeged, Szeged, Hungary

23 July 2024

doi: 10.14232/syrpharmacognosy.2024.af

A10

doi: 10.14232/syrpharmacognosy.2024.a10

Isolation of furanocoumarin compounds from the aerial parts of *Heracleum sphondylium*

Manar Madah[1], Anita Barta[1], Judit Hohmann[1,2], Tivadar Kiss[1,2]

Email: manarmadah111@gmail.com

Heracleum sphondylium, commonly known as hogweed, belongs to Apiaceae family which is known by furanocoumarins as its specialized compounds [1, 2]. In Eastern European countries like Romania, many dietary supplements in the market promote one of *Heracleum sphondylium* ethnobotanical uses in enhancing fertility in both genders despite the lack of scientific background regarding this indication [1]. In addition, furanocoumarins have a wide range of biological effects including anticancer effect. Few studies have investigated the activity of essential oil on cancer cell lines with little attention to the possible anticancer effect of furanocoumarins in *Heracleum sphondylium* [3]. Our objective was to develop preparative isolation method in order to produce new furanocoumarins from aerial parts of *H. sphondylium* for subsequent anti-proliferative effect investigation. Moreover, investigating the extracts effect in enhancing fertility. Aerial part of H. *sphondylium* was extracted with methanol using maceration. The extract was partitioned successively with *n*-hexane, chloroform, and ethyl acetate. Further chromatography purification *n*-hexane fraction was achieved using open column chromatography with polyamide stationary phase and methanol-water gradient elution starting with 20% MeOH, 40%, 60% and 80%, respectively. Four fractions (H20, H40, H60, H80). H60 and H80 were containing the compounds of interest in considerable amount based on the TLC. Therefore, H60 and H80 were subjected to further chromatographic steps (Open Column Chromatography, Centrifugal Preparative Thin Layer Chromatography, Flash Chromatography) resulting in isolation of pure furanocoumarins. The structures of the compounds were determined by, 1D (^{1}H, ^{13}C JMOD) and 2D NMR (HSQC, HMBC, ^{1}H-^{1}H COSY, NOESY) spectroscopic analysis. Our work resulting in isolation of six pure furanocoumarin compounds. Among these six pure furanocoumarins, 8-geranoloxypsoralen was isolated for the first time form *Heracleum sphondylium* and psoralen, 8-geranyl 5-methoxy is isolated for the first time form *Heracleum* as a genus. In conclusion, *Heracleum sphondylium* aerial parts are a good source for furanocoumarin compounds which might have a promising anti-cancer effect. Furthermore, our work might provide more reliable and scientific-proved data about the claims of using *Heracleum sphondylium* supplements in fertility domain.

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