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Mono- and diphenanthrenes with antiproliferative activity from *Juncus gerardii*

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Plants belong to family Juncaceae accumulate different types of secondary metabolites, e.g. phenanthrenes, flavonoids, coumarins, triterpenes, steroids and phenolic acid derivatives. The main bioactive components of *Juncus* genus, the largest genus of the family, are phenanthrenes; several of them possess interesting biological activities (e.g. antiproliferative, antimicrobial, anti-inflammatory, antioxidant, and spasmolytic effects) [1].

In continuation of our work dealing with the isolation of biologically active secondary metabolites from Juncaceae species, *Juncus gerardii* was investigated. 23 Phenanthrenes were isolated from the methanol extract of the plant using different chromatographic methods. The structure elucidation of the compounds was carried out by extensive NMR and HRMS experiments. 12 Compounds (gerardiin A-L) are new natural products (8 mono- and 4 diphenanthrenes), while 11 phenanthrenes (compressins A and B, effusol, juncusol, effususol A, jinflexin C, dehydroeffusol, 7-hydroxy-2-methoxy-1-methyl-5-vinyl-9,10-dihydrophenanthrene, 2-hydroxy-1-methyl-7-hydroxymethyl-5-vinyl-9,10-dihydrophenanthrene, 5-aldehyde-2,7-dihydroxy-1-methyl-9,10-dihydrophenanthrene, 2,7-dihydroxy-5-hydroxymethyl-1-methyl-9,10-dihydrophenanthrene) were isolated for the first time from the plant. The isolated phenanthrenes were tested for their antiproliferative effect against human tumour (HeLa, SiHa) cell lines. Several compounds possessed higher activity (IC_{50}s 1.31–10.66 µM) in case of HeLa than the positive control cisplatin (IC_{50} 12.43 µM).

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