ISOLATION OF PHENANTHRENES FROM *JUNCUS MARITIMUS*

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Introduction: *Juncus maritimus* Lam. belongs to the genus *Juncus*. *Juncus* is one of the biggest genera of Juncaceae plant family and by far the most important one from phytochemical and pharmacological points of view. Juncaceae species accumulate different secondary metabolites, among them flavonoids, phenanthrenes, coumarins, triterpenes, steroids and phenolic acid derivatives. However, the major bioactive components of Juncaceae species are phenanthrenes. Phenanthrenes compose a small group of aromatic secondary metabolites. They are divided into three major groups: mono-, di-, and triphenanthrenes. Several isolated compounds possessed different biological activities [antiproliferative, antimicrobial, anti-inflammatory, antioxidant, spasmolytic, anxiolytic, antialgal effects] [1].
In continuation of our work dealing with the isolation of biologically active secondary metabolites from Juncaceae species, *Juncus maritimus* was investigated.

Results and discussion: The dried plant material was extracted with methanol. After evaporation, the extract was dissolved in 50% methanol and then subjected to solvent–solvent partition with *n*-hexane, $CHCl_3$ and finally ethyl acetate. The $CHCl_3$ fraction contained phenanthrenes; therefore, it was separated by a combination of different chromatographic methods, including VLC, MPLC, gel filtration, preparative TLC, and HPLC. The structure elucidation of the compounds was carried out by extensive NMR spectroscopic analysis, and HRMS experiments. As a result of the preparative work, seven phenanthrenes (maritins A and B, juncusol, effusol, jinflexin A, 2,7-dihydroxy-5-formyl-1-methyl-9,10-dihydrophenanthrene, and effususin A) and two flavonoids (apigenin and luteolin) were identified from the aerial part of the plant.

Conclusion: With a combination of different chromatographic techniques, altogether nine compounds (seven phenanthrenes and two flavonoids) were isolated from *J. maritimus*. Maritins A and B are new natural products. All compounds were isolated for the first time from the plant, with the exception of effusol [2].

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