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ALLELOPATHIC POTENTIAL OF THE *Ranunculus rionii* LAGGER AND *Ceratophyllum demersum* L. EXTRACTS AGAINST MICROBIAL AND MICROALGAL CULTURES

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Abstract

Ranunculus rionii and *Ceratophyllum demersum* develop aquatic dense stands, which lately started to represent a major ecological concern for all the ponds and/or lakes in Romania. The potential relationships between the phytochemical compounds detected in these plant extracts (acids, phenols, heterocycles, alcohols, hydrocarbures) and the allelopathic properties against Gram positive and Gram negative bacterial strains and microalgal cultures were investigated and discussed in the current study. The untargeted solid phase micro extraction (SPME) GC/MS analysis performed on the dried plants incubated for 25 min at 50°C showed that phenols are the major constituents of the volatile fingerprint with a relative peak area higher than 13%, namely: 2,6 bis(1,1-dimethylethyl)-4(1-oxopropyl) phenol and phenol, 3,5-bis (1,1-dimethylethyl). The inhibition effects *ex situ* of the analyzed extracts suggest that aquatic macrophytes may excrete inhibitory substances and show allelopathic inhibitory potential against certain bacterial strains and on: *Rhizoclonium hieroglyphicum* and *Microcystis aeruginosa* cultures.

Key words: allelopathic activity, chromatographic fingerprint, ethanolic extract, methanolic extract, submerged macrophytes, volatile compounds

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