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Valorization of *Pardoglossum Cheirifolium* (L.) E. Barbier & Mathez. (Boraginaceae) as a Source of Bioactive Molecules Within a Circular and Sustainable Bioeconomy

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Abstract

Pardoglossum cheirifolium is an Algerian medicinal herb used to treat acne, diarrhea and ulcer (Boussalah, 2020), yet there is little information available concerning its bioactive composition and its potential economic value has not been explored. The aim of this research was to study, the extract composition of whole plant of *P. cheirifolium* and its coherence with antioxidant and antiacetylcholinesterase activities in order to prove its possible use as potential natural source for human health. Phenolic compounds were distinctively profiled in the different extracts using TLC and standard phenolics. The antioxidant activity was evaluated by the DPPH, ABTS, DMPD, nitric, hydroxyl, superoxide and singlet oxygen radicals, β-carotene bleaching, CUPRAC, ferric reducing, and metal chelating activity methods. Maceration in ethyl acetate and methanol allowed recovering the highest flavonol (9.52 and 4.04 mg QE/g DE, respectively) contents. The phytochemical analysis led to the identification of several phenolic compounds that were dominated by chrysophanol, emodin, caffeic acid, chlorogenic acid and quercetin-3-*O*-sophoroside. The ethyl acetate and methanol extracts showed potential antioxidant activity in the different assays and this could be attributed to their polyphenol, tannin, and flavonoid contents. The ethyl acetate and methanol extracts exhibited also acetylcholinesterase inhibitory activity (IC_{50} values of 1.94 and 0.58 mg/mL, respectively). Owing to its phenolic profile and biological activities, *P. cheirifolium* could be considered as potential functional ingredient for pharmaceutical applications.

Key Words: *Antioxidant Molecules, Flavonoids, Neuroprotective Natural Molecules, Sustainable Life*

Reference

Merad Boussalah, N. (2020). Chemical composition and biological activities of essential oil and hydrosol extract from aerial parts of *Cynoglossum cheirifolium* L. from Algeria. *Journal of Essential Oil Bearing Plants*, *23*(1), 97-104. https://doi.org/10.1080/0972060X.2020.1729249