

The first investigation of the chemical composition antioxidant and antibacterial activities of the aerial parts aqueous methanolic extract of the Algerian endemic plant *Psychine stylosa* Desf

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Abstract

The phytochemical profile of the aqueous methanolic extract from the aerial parts of *Psychine stylosa* Desf., an Algerian endemic species belonging to the Brassicaceae family and previously unstudied, was analysed using the HPLC-MS/MS technique, allowing for the identification of 65 compounds from diverse chemical classes, including phenolic compounds, flavonoids, sugars, alkaloids, sulphur compounds, peptides, terpenoids, and steroids, as well as 13 unidentified compounds. The extract showed a high total polyphenol content of 64.39 ± 1.63 mg GAE/g extract and a flavonoid content of 20.39 ± 0.53 mg QE/g extract, indicating its richness in bioactive phenolic constituents. It also exhibited strong antioxidant activity, with an IC_{50} value of 9.82 ± 1.70 μ g/mL in the DPPH assay, while no antibacterial effect was observed against the tested bacterial strains. This study represents the first report combining phytochemical characterisation and biological evaluation of this plant species, highlighting its potential as a natural source of antioxidant compounds.

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