Phytochemical screening, Total Phenolic, Total Flavonoid, and Antioxidant Activity evaluation of extracts from *Stachys mouretii* Batt.Pit.

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Abstract

The objective of this research was to assess the phytochemical profile, total phenolic and flavonoid contents, and antioxidant potential of extracts obtained from the leaves of *Stachys mouretii*. The plant material was collected from the Talasemtane National Park in the Ouazzane region of Morocco in April 2018. The leaves were dried, crushed, and subjected to sequential extraction using hexane, ethyl acetate, and methanol. The antioxidant activity of the ethyl acetate and methanol extracts was determined using the 2,2-diphenyl-1-picrylhydrazyl (DPPH) scavenging assay, ferric reducing antioxidant power (FRAP) assay, and total antioxidant capacity method. The Folin-Ciocalteu method and the aluminum chloride ($AlCl_3$) colorimetric assay were employed to measure the total phenolic and flavonoid contents, respectively. The qualitative phytochemical screening of the *Stachys mouretii* leaf extracts indicated the presence of various bioactive phytoconstituents, such as flavonoids, sterols/steroids, terpenes/terpenoids, and polyphenols. The methanol extract displayed higher DPPH scavenging activity than the ethyl acetate extract. However, both ethyl acetate and methanol extracts exhibited greater antioxidant activity than Butylated Hydroxy Toluene (BHT) in the total antioxidant capacity determination. The ethyl acetate extract showed a significant amount of total phenolic and flavonoid contents. These findings provide a basis for further exploration of the medicinal potential of *Stachys mouretii* and for the isolation and purification of antioxidant compounds from this plant species.

Keywords: *Stachys mouretii*, phytochemical screening, antioxidant activity, total phenolic, total flavonoid.