

Antioxidant activity of phenolic compounds of *Helminthotheca hechioides*

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Abstract:

Phenolic compounds are a large group of phytochemicals, known for their antioxidant properties and potentially protection against cancer. The main objective of this work was to evaluate antioxidant activity of *Helminthotheca echioides* (leaves and stems), conventionally used in traditional medicine and local gastronomy of the Tizi-Ouzou (northern Algeria). Phenolic compounds were extracted from the plant powder by maceration, using three different solvents: methanol, ethanol and ethyl acetate. The main results obtained show that the aerial parts are very rich in flavonoids, tannins and coumarins. The analysis of functional groups by infrared shows that the plant is rich in phenol and ketone. The determination of the phenolic compounds of methanolic, ethanolic and ethyl acetate extracts, have very interesting polyphenol contents, 133.744 ± 27.35 mg GAE / g, 114.45 ± 2.42 mg GAE / g and 47.394 ± 1.497 mg GAE / g, respectively. The antioxidant activity determined by DPPH, ABTS radicals assay and reducing power tests were carried out showing the strong antioxidant power of the extract with values of about 75% for DPPH and 95% for ABTS. The extract prepared on the basis of the mixture (methanol / formic acid) has the greatest inhibitory activity against *E. faecalis* (ATCC 29212), *E. coli* (ATCC 25922) and *F. solani* (ATCC 38136) with inhibition zone diameters of 20 mm, 16 mm and 75 mm, respectively. These results confirm that this plant has several biological activities. It would be interesting to use it as a functional powder for different uses (food and pharmaceutical).

Keywords: *Elminthotheca echioides*, *Asteraceae*, polyphenols, antioxidant activity