

Antioxidant and antibacterial activity of *Scrophularia striata*

F. Safavi^{1,*}, H. Meighani¹, P. Ebrahimi², S. Hafez Ghoran¹

¹Department of Chemistry, Golestan University, Gorgan, Iran

²Department of Chemistry, Gonbad Kavous University, Gonbad, Iran

Background and Aims: *Scrophularia striata* Boiss is used for the treatment of eczema, wounds and has shown various biological activities such as antimicrobial, antitumoral and anti-inflammatory properties. This study is designed to evaluate the antimicrobial and antioxidant activity of the root and aerial part of *Scrophularia striata*.

Methods: The sequential extracts were prepared from dried root of *S. striata* with chloroform, ethyl acetate and methanol. In continue the methanolic extract of aerial part was prepared. After concentrating the different extracts through disdiffusion method the effect of inhibition zone of their antibacterial component on *Staphylococcus aureus*, *Escherichia coli* and *Bacillus cereus* were evaluated. Antioxidant activity (Ferric Reducing-Antioxidant Power assay, FRAP) were determined from aqueous extract.

Results: None of the EtOAc and chloroform extract of root tested showed antibacterial activities to any of the bacteria species tested. whereas the methanolic extract of root and aerial part had inhibitory effects on the growth of this microorganisms. The most effective one was methanolic extract of root against *Bacillus cereus* (ZI = 2.1 cm). The extracts showed antioxidant effect, 216.75 mmol of FeSO₄/g DW in aerial part and 134.25 mmol of FeSO₄/g DW in root.

Conclusions: Root and aerial part of plant possessed antioxidant activity. Recent studies shown that the methanolic extracts of the considered plant contained many bioactive chemical constituents. Thus it is proposed that Antioxidant and Antibacterial activities of this plant might be due to the presence of flavonoids, coumarins even monoterpenes in the plant extracts.

Keywords: Antimicrobial activity; Antioxidant power; FRAP; *Scrophularia striata*; Zone of inhibition