

عنوان مقاله:

Comparative Study of the Antioxidant, Antimicrobial and Anti-Inflammatory Activity between Essential Oil and Hydrosol Extract of the Aerial Parts of *Inula viscosa* L

محل انتشار:

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خلاصه مقاله:

Introduction: The main objective of this study was to determine the chemical composition of the aerial part of the essential oil and the hydrosol extract of *Inula viscosa* which has never been studied and to compare their antioxidant, anti-inflammatory, and antimicrobial properties in vitro. This was done in order to identify new biologically active agents. **Materials and Methods:** The essential oil and hydrosol extract were analyzed by GC and GC/MS. Antimicrobial activity was tested against three bacteria and two fungi. The antioxidant activities were assessed using three different methods: radical scavenging activity (DPPH), the β -carotene bleaching test, and Ferric-Reducing Antioxidant Power (FRAP). The anti-inflammatory activity was assessed using the protein denaturation method. **Results:** The essential oil of *Inula viscosa* was composed mainly of hydrocarbon sesquiterpenes (52.6%) and oxygenated sesquiterpenes (47.0%), while the hydrosol extract was mainly composed of oxygenated sesquiterpenes (86.6%). The results of the biological activities showed that the hydrosol extract exhibited an interesting antioxidant activity, nearly equivalent to the synthetic antioxidant BHT. Furthermore, the hydrosol extract displayed very good anti-inflammatory activity, with an IC_{50} of 0.51 g/L, in comparison to diclofenac sodium (IC_{50} = 0.63 g/L). The hydrosol extract also exhibited antimicrobial activity and acted as an effective inhibitor of *Bacillus cereus*, *Pseudomonas aeruginosa*, *Candida* ATCC 26960, and *Candida* ATCC 10231 microorganisms. **Conclusions:** The hydrosol extract of *I. viscosa* make this specie a potential alternative natural for use in the food and pharmaceutical industries. It can be utilized in the treatment of diseases involving oxidative stress as well as in the treatment of microbial and inflammatory infections.

کلمات کلیدی:

Hydrosol Extract, Essential oil, anti-inflammatory activity, Antioxidant activity, Antimicrobial activity, Natural products

