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Antioxidant and anti-inflammatory properties of aerial parts of *Heliotropium undulatum*

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Background & Aim: Attenuation of the chronic inflammatory response and oxidative stress are a beneficial strategy to combat several human diseases. Algerian *Heliotropium undulatum* is considered of high importance due to its folk medicine used for the treatment of inflammatory disorders. The present study was undertaken to examine their antioxidant and anti-inflammatory properties using n-BuOH extracts of both of *H. undulatum* leaves (BEHUL) and stems (BEHUS).

Methods: Both BEHUL and BEHUS were assessed for phytochemical screening (HPLC-TOF/MS analysis), antioxidant activity (*in vitro* model assay) and for anti-inflammatory activity (*in vitro*, *in vivo* model).

Results: The obtained results revealed that both extracts (BEHUL) and (BEHUS) showed a significant reducing power in the following order: leaves>stems. Both fractions also exhibited a significant °OH. scavenging effect; this effect is more pronounced in the case of BEHUL as compared with BEHUS (IC₅₀: 96 µg/mL vs 150 µg/mL). BEHUL exhibited a strong ability in iron chelation as evidenced by the efficiency in the suppressive of Fe²⁺-ferrozine complex formation. However BEHUS exhibited more anti-inflammatory effect in comparison to BEHUL which was evidenced by the NO radical scavenging activities. Inhibiting the hypotonicity induced haemolysis; inhibiting the heat induced albumin denaturation and the highest oedema inhibition.

Conclusion: From the present study, it can be concluded that aerial parts of *H. undulatum* possess marked antioxidant and anti-inflammatory effects. These effects could possibly due to the different degree of polyphenols contents of both BEHUL and BEHUS fractions that may be clearly explained by the HPLC-TOF/MS analysis.

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