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Antioxidant activity and rosmarinic acid content of ultrasound-assisted ethanolic extracts of medicinal plants

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ABSTRACT: The interest in finding natural antioxidants for use in food, drugs or cosmetic products has increased concerning the replacement of synthetic antioxidants due to their possible undesirable toxic effects on humans long-term exposed.

Ethanolic extracts of *Hypericum perforatum* (Hypericaceae), *Lavandula angustifolia* (Lamiaceae), *Malva sylvestris* (Malvaceae), *Melissa officinalis* (Lamiaceae), *Salvia officinalis* (Lamiaceae), *Rosmarinus officinalis* (Lamiaceae) were obtained under sonication with a yield of 5.9%, 3.8%, 5.8%, 3.8%, 4.2% and 2.3% (w/w), respectively and their antioxidant activity assessed by the TLC-DPPH and DPPH assays. With exception of *L. angustifolia* and *M. sylvestris* extracts all the others showed antioxidant activity greater than 70% (at 0.1 mg/mL).

The HPLC analysis shows that all tested extracts contain rosmarinic acid and suggest that *H. perforatum* extract have the highest concentration (2.76 mM) and *M. sylvestris* extract the lowest one (0.47 mM).

In this study, we describe a simple laboratory procedure using an ultrasound-assisted ethanolic extraction from six medicinal plants. This potential didactic approach showed to be a rapid and effective process on preserving the antioxidant activity and rosmarinic acid