

Antioxidant activity and rosmarinic acid content of ten medicinal plants

F. Mehni*, F. Sharififar, M. Ansari

Herbal and Traditional Medicine Research Center, Faculty of Pharmacy, Kerman University of Medical Sciences, Kerman, I.R. Iran.

Background and Aims: Rosmarinic acid is mainly found in some genus of the subfamily Nepetoideae of the family of Lamiaceae and Boraginaceae. A variety of biological activities have been explained for rosmarinic acid such as astringency, anti-inflammatory, antimutagenicity, antibacterial and antiviral effects. It is also one of the efficient natural antioxidants. This study was designed to examine the in vitro antioxidant activities and rosmarinic acid content of the 10 plants methanolic extracts of *Zataria multiflora*, *Tanacetum parthenium*, *Zhumeria majdae*, *Nepeta glomerulosa*, *Nepeta fissa*, *Salvia rhytidea*, *Teucrium polium*, *Ziziphora clinopodioides*, *Echium amoenum*, *Mentha longifolia*.

Methods: The methanolic extract of the plants were screened for their possible antioxidant activity using two complementary methods of diphenylpicrylhydrazil (DPPH) free radical scavenging and β -carotene bleaching tests. IC₅₀ and percent of inhibition of the plants were determined. Rosmarinic acid content of these plants were determined by a derivative spectrophotometric method developed and validated in this study.

Results: Amongst the tested plant extracts, *Zataria multiflora*, *Tanacetum parthenium* and *Mentha longifolia* exhibited the most antioxidant effect with 90.3%, 89.0% and 86.5% of DPPH inhibition compared to BHT (81% DPPH inhibition) respectively. *Z. multiflora* also exhibited the least IC₅₀ (87 μ g/ml). In addition rosmarinic acid content determination showed that three above mentioned plant extracts have the highest content of rosmarinic acid ranging from 7.1 to 14.0% of the extract.

Conclusions: It can be concluded that the most antioxidant activity can be seen in the extracts with more rosmarinic acid, that may show the responsibility of rosmarinic acid in antioxidant activity.

Keywords: Antioxidant; Rosmarinic acid; Plant extracts