

## Antioxidant Activity of Essential Oils and Ethanolic Extracts of Four Medicinal Plants Alone and in Combination

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**Abstract :** The present work aims to evaluate the antioxidant activity of ethanolic extracts and essential oils of aromatic plants of the Lamiaceae family: *Thymus algeriensis* and *Salvia rosmarinus*, and Anacardiaceae: *Pistacia lentiscus*, Myrtaceae: *Eucalyptus polybractea*. The polyphenols were measured using the Folin-Ciocalteu method; the results showed that the essential oils studied as well as the ethanolic extracts are relatively rich in polyphenols. Their antioxidant properties were tested by the synthetic DPPH radical trapping method. The IC50 values were determined according to the graph representing the percentage of inhibition of the DPPH radical by essential oils and by ethanolic extracts, according to our results there is a correlation between the level of polyphenols present in the different essential oils and different ethanolic extracts and their ability to neutralize free radicals. Several combinations were carried out between the essential oils and also between the ethanolic extracts in order to determine the type of interactions existing between the combined substances, the results were represented in the form of isobolograms. Additive and super-additive effects were observed in combinations of essential oils, and super-additive and sub-additive effects were observed for combinations of ethanolic extracts.

**Keywords :** essential oils, ethanolic extracts, DPPH, combination

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