

## ANTIOXIDANT ACTIVITY AND VOLATILES CONSTITUENTS OF WILD AND CULTIVATED *SALVIA OFFICINALIS* ESSENTIAL OILS FROM ALBANIA

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### Abstract

*Salvia officinalis* L. is the largest genus of the *Lamiaceae* family; it is native to Southern Europe, currently being successfully cultivated as a medicinal plant in Europe. Sage finds in Albania best ecological conditions, especially on dry land, rocky and limestone, exposed to the sun, which maintains very well the colours and the fragrance in leaves.

The chemical composition of the volatile oils of wild *Salvia officinalis* (Tepelena region) and cultivated *S. officinalis* (Tirana region) populations have been investigated. The essential oils were obtained by hydrodistillation and their analyses were performed by Gas chromatography-mass spectrometry (GC-MS). Moreover, the essential oils were tested for their antioxidant activity.

The major constituents of these oils are as follows: camphor (40.2, 47.8%),  $\alpha$ -thujone (19.2, 22.2%), eucalyptol (5.4, 2.6%), camphene (5.8, 6.1%), borneol (2.1, 2.9%) and bornyl acetate (3.3, 1.4%) for *S. officinalis* originated from Tepelena (wild) and Tirana (cultivated), respectively. The essential oil of wild *S. officinalis* is presenting the highest interaction with the stable radical DPPH. For this samples the reducing activity is increased by the time e.g. it enhances after 20 min. (29.82%) of interaction and it is higher after 60 min. (33.68%). It is time dependent with the exception of essential oil of cultivated *S. officinalis* which presents higher interaction at 20 min. (13.82%) and lowers after 60 min. (7.02%). The two tested samples showed low activity of inhibition of lipoxygenase (LOX), ranged from (25.05%) to (20.95%) for *S. officinalis* originated from Tepelena (wild) and Tirana (cultivated), respectively, whereas both tested samples did not present any anti-lipid peroxidation activity.

We can conclude that the antioxidant activity of the wild *S. officinalis* is higher compared with the same cultivated species and the chemotypes with camphor predominating are highly recommended.

**Key words:** Essential oils, Antioxidant, *Salvia officinalis*, Albania.

