

## PHENOLIC COMPOUNDS, CHEMICAL COMPOSITION AND ANTIOXYDANT EFFECT OF ALGERIAN *ARTEMISIA HERBA-ALBA* (ASSO.) ESSENTIAL OIL

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### Introduction & Objectives:

The oxidative stress imposed by reactive oxygen species (ROS) is the cause of many chronic and degenerative diseases (1, 2). The scavenging of ROS is important to protect cells against these diseases(3). The search for biomolecules with high antioxidant ability and free radical scavenging capacity from plants constitutes a significant scientific challenge. This study aims to determine the phenolic composition of extract and chemical profile of essential oil (EO), as well as the evaluation of its antioxidant potential *in vitro*.

### Methodology (Material and methods):

Secondary metabolites were obtained by a water/methanol (30:70; V: V) maceration, the extract has undergone phytochemical analysis and quantification of phenolic compounds. The oil was obtained by hydrodistillation from aerial parts using Clevenger apparatus, then analyzed by gas chromatography-Mass spectrometry (GC-MS). The antioxidant activity was examined by four tests: DPPH radical scavenging, ABTS radical scavenging,  $\beta$  carotene bleaching inhibition and reducing power (FRAP).

### Results and Discussion:

The yield of oil and extract was  $1,15 \pm 0,05\%$  and  $21,46 \pm 0,02\%$ , respectively. Tubes reactions detected the presence of polyphenols, flavonoids, alkaloids, sterols and saponins. The amount of total polyphenols, flavonoids and condensed tannins were significant in our extract. The oil obtained is yellow with the strong herbaceous smell. Using GC-MS technique, 61 compounds were identified representing more than 99% of the oil composition, the main constituents were respectively, camphor,  $\alpha$ -Thujone, Chrysanthenone, 1,8 Cineol and  $\beta$ -Thujone. The results of antioxidant activity showed that the EO of the studied species has an interesting antiradical capacity; the latter is due to its chemical composition.

### Conclusion:

In conclusion, the results of the present study indicate that essential oil has a noteworthy potential antioxidant for use in therapeutic formulations, but further studies should be conducted.

**Keywords:** *Artemisia herba-alba* essential oil, antioxidant activity, phenolic compounds, GC-MS, oxidative stress.

### References

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