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Effect of Harvest Provenance on Chemical Composition And Biological Activity of Algerian Artemisia Herba-Alba

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ABSTRACT

In order to promote the use of Algerian medicinal and aromatic plants growing in arid zones to combat diseases, parts of Artemisia herba-alba are submitted to chromatographic tests to identify some active constituents, then the study was completed by chemical and biological tests, results are discussed below.

Keywords: flavonoids, Artemisia herba-alba, HPLC, essential oil, biological activity.

1. Introduction

Artemisia herba-alba is a greenish shrub known by indigenous peoples living in arid zones [1, 2]. It is widely used in folk medicine to treat many diseases such as diabetes mellitus and diarrhea [3-5]. Many research works were carried out to investigate the phytochemical composition by using HPLC methods [6] to identify the secondary metabolites such as flavonoids which are found to be active [7, 8], while GC and GC-MS are used to identify volatile compounds in essential oils. The aim of this study is to find new pharmacologically active compounds and compare their activity by region.

2. Experimental

Aerial parts of Artemisia herba-alba (A.h.alba) were collected from different Algerian localities and submitted to analytical and biological tests. The volatile compounds obtained by hydrodistillation were investigated by GC and GC-MS. While the fractions obtained by liquid-liquid extraction of the alcoholic macerates were analysed by HPLC. Antioxidant capacity of both EO and fractions are tested *in-vitro* using DPPH- chemical test. Finally, various micro-organism strains subjected to the biological activity test, then MIC are calculated.

3. Results and Discussion

It is found that essential oils (EOs) are qualitatively and quantitatively different from region to another. Thujone isomers, camphor and 1,8 cineol are found to be the predominant compounds. HPLC processed data reveals the presence of many constituents similar to the injected standards. To the best of our knowledge, some flavones and phenolic acids are detected for the first time in A.h.alba extracts such as diosmin which is biologically active. Results showed the potential activity of extracts to combat free radicals than the Eos, this could be due to the high presence of flavonoid compounds in extracts, while variation in chromatographic profiles of harvest areas leads to differences in Artemisia herba-alba activities.

4. Conclusions

Despite the variation of their chemical composition, samples present potential activities. Thus, this study suggests that A.h.alba extracts could be used in pharmaceutical industry and cosmetology as natural ingredients to prevent oxidation and as preservatives.



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