

**Abstract:**

*Artemisia herba-alba* (Compositae) is one of the most important medicinal plants. It is important to carry out this research with regard to the presence of different populations of a species in different regions and lack of sufficient information about these populations. This study was conducted to evaluate the quantity and quality of essential oils and some secondary metabolites of *Artemisia herba-alba* plant collected from Andimeshk County (Khuzestan Province) in two vegetative and reproductive phases. The results showed that the fresh plant sample had the highest percentage of essential oil (%0.96) in the reproductive phase. Also, the results of studies on secondary compounds of *Artemisia herba-alba* showed that flavonoid, total phenolic compounds, flavonol, anthocyanin and antioxidant activity in vegetative phase were 5.16 mg quercine/leaf dry weight  $g^{-1}$ , 2.41 gallic acid mg/leaf dry weight  $g^{-1}$ , 0.301 mg quercine/ leaf dry weight  $g^{-1}$ , 0.089 mg /dry plant tissue  $g^{-1}$  and 0.26 nano acid ascorbic acid/ $g^{-1}$ , respectively. Also, the secondary compounds studied of flavonoid, total phenolic compounds, flavonol, anthocyanin and antioxidant activity in the reproductive phase were 7.36 mg quercine/ leaf dry weight  $g^{-1}$ , 1.95 mg gallic acid/dry leaf weight  $g^{-1}$ , 0.28 mg quercine/ leaf dry weight  $g^{-1}$ , 0.11 mg/ dry plant tissue  $g^{-1}$  and 0.21 nano-acid ascorbic/ $g^{-1}$ , respectively. GC and GC-MC analyzes were used to evaluate the essence and quality of essential oils. In general, investigations have identified 19 compounds that showed a large difference in the composition of plant and dry samples in vegetative and reproductive phases. The dominant components of the essential oil were cis-chrysanthenol (21.80 to 18.28%), chrysanthenum (10.06 to 6.17%), subinen (9.34 to 7.01%), trans-verinil acetate (5.91 to 4.78%), pipertinone (4.66 to 4.11%), terpinen-4-ol (4.38 to 3.73%), 6-ccomfonon (4.57 to 2.96%), 1, 8-Cineol (2.82 to 1.85%) and Alpha-Tojan (1.93 to 1.36%). Due to the biochemical and physiological morphological characteristics of a plant that follows two factors of genetics and environment, it can be expected that the plants in different regions have different secondary compounds.

**Key words:** Antioxidants, Anthocyanins, Andimeshk, Essential oil, Flavonoids



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**Title**

**Study on quality of essential oil and some  
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(*Artemisia herba-alba*)**

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