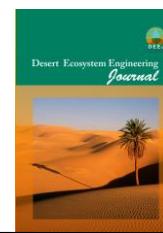




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Phytochemical investigation of the essential oil of *Vitex pseudo-negundo* (Hauskn.) grown in natural habitats by chromatography method (Fars province-Darab city)

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Extended abstract

Introduction: The *Vitex pseudo-negundo* plant is one of the types of medicinal plants that grow in natural ecosystems and often on the margins of seasonal rivers, dry rivers, mesial beds and alluvial land ranges in the central highlands of the country. Fars province is one of the important habitats of this plant and it is important to collect information about the distribution of this plant in different parts of Fars province. Studies have shown that the plant has anti-cancer, antioxidant, antibacterial, antiviral, disinfectant and antifungal effects, and is also widely used in traditional medicine as an anti-inflammatory, tonic, diuretic, appetite suppressant. It is used as astringent, narcotic, carminative and anti-flatulent. The aim of this research is to investigate the phytochemical contents of the essential oil of the *Vitex pseudo-negundo* medicinal plant grown in the natural habitats of Darab city.

Materials and Methods: At first, the natural habitats of the plant in the city were determined on the map by field survey. In each area, the height above the sea level, latitude and longitude were measured by a positioning device (GPS, Vista model, Taiwan). Due to the high density and abundance of the *Vitex pseudo-negundo* plant in the Fasarood area of Darab, the physical and chemical characteristics The soil of this habitat, such as soil acidity, electrical conductivity and soil elements, was also recorded through soil sampling and data analysis. Then the fresh leaves of the plant were collected from the habitats in question. In order to prevent undesirable changes, the collected plant organs were dried in the shade at a temperature of 10-20 degrees Celsius. In order to extract essential oil, 100 grams of flowering branches crushed by a mill were extracted by distillation with water using a Clevenger machine for 3 hours in the laboratory of medicinal plants of the Faculty of Agriculture and Natural Resources of Darab city. Separation of essential oil from the column of the device was done with a special syringe. The resulting essential oils were separated from the surface of the water by anhydrous sulfate, dehumidified, then weighed and then the percentage of essential oil production efficiency was calculated through the formula. After dehydrating, the essential oil was stored in a closed glass container in a refrigerator at a temperature of 4 degrees Celsius until it was injected into the gas chromatograph. Gas chromatography (GC: Gas chromatography) and gas chromatography-mass spectrometry (GC-MS: Gas chromatography-mass spectrometry) were used to determine the quantity and quality of essential oil compounds.

Results and discussion: One of the important results of this research, compared to the results of similar research on *Vitex pseudo-negundo* plant in different regions of the country, is the identification of 43 different compounds in *Vitex pseudo-negundo* plant essential oil by chromatography method. The comparison of the efficiency of essential oils in different regions of the city showed that the percentage of essential oil efficiency was respectively in different areas of the habitat of this plant in Darab city, including Fateh Abad (0.6), Arab Chegini (0.4), Jannet Shahr (0.5), Katouye strait (0.3), Raghaz strait (0.2), Ab Barik (0.7) and Fasarood (0.9). According to the present research, the percentage of essential

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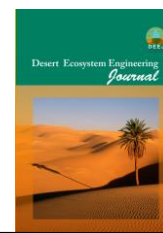
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oil in the habitats of Darab city was determined between 0.2 and 0.9, which compared to previous researches, *Vitex pseudo-negundo* habitats in Darab city had a higher percentage of essential oil in some places such as Fasaroud (Korsia). According to the different compounds identified in the essential oil of *Vitex pseudo-negundo*, it was found that monoterpenes were the main group of constituents of the essential oil, followed by hydrocarbon sesquiterpenes, which was consistent with previous research. has it. The highest compounds identified in *Vitex pseudo-negundo* plant in different habitats of the city, respectively, include alpha-pinene (50.40%), limonene (14.98%), e-caryophyllene (8.55%), sabinene (3.54 percent) and Mirsen (2.44 percent). According to the present research, the essential oil of this plant can be considered by pharmaceutical companies as natural source rich in alpha-pinene chemical composition. Extraction of the alpha-pinene compound from the essential oil of of *Vitex pseudo-negundo* plant can be profitable and earn high currency for the activists of this field inside and prevent foreign exchange from leaving the country. Considering the tolerance of this shrub to the ecological conditions of semi-desert lands and the beauty of the landscape, more attention can be paid to the medicinal value of the plant.

Keywords: *Vitex Pseudo-Negundo*, Celevenger, Essential Oil, Chemical Compounds.