ABSTRACT
This study was conducted on experimental field at Garmsar zone in Iran during 2010 – 2011 in order to Evaluation of medicinal plant valerian (Valeriana officinalis L.) essential oil compositions cultivated at Garmsar zone in Iran. Sowing date was 20 September and planting density was 80000 plant ha-1. The volatile constituents of the root part of cultivated Valeriana officinalis were isolated by steam distillation and analysed by GC and GC-MS systems that were identified the 69 compositions. The results showed that oil percentage was 1.65%. The basic oil components among the identified 69 compounds were α-Fenchene (6.1%), Camphene (11%), Borneol (6.6%), Bornyl acetate (10.1%) and Valerened (12.9%). Our finding may give applicable advice to commercial and medicinal and aromatic plants researches for management for increase of quantity and quality yields in medicinal and aromatic plants farming.

KEYWORDS: essential oil content, compositions, Valeriana officinalis L.

INTRODUCTION
Valerian, is a medicinal plant and one of the important genera of the Valerianaceae family. The genus Valeriana is represented by six species growing wild in Iran. Valeriana officinalis (valerian) was considered as a perfume in the sixteenth century. Valerian (Valeriana officinalis L.) is a well-known and frequently used medicinal plant, which has a long proven history of efficacy. The plant is cultivated as a medicinal plant on a commercial scale in the northern parts of Europe and America. Valerian has been shown to encourage sleep, improve sleep quality, and reduce blood pressure. The valerian root is sedative, mild anodyne, hypnotic, antispasmodic, carminative, and hypotensive. Traditionally, it has been used for hysterical states, excitability, insomnia, hypochondriasis, migraine, cramp, intestinal colic, rheumatic pains, etc. Modern interest in valerian preparations is focused on their use as a sedative and hypnotics. The typical constituents of valerian roots are found to be valeric and isovaleric acid, monoterpenes (α-pinene, α-fenchene, camphene), monoterpenic esters (bornyl acetate, myrtenyl acetate, myrtenyl isovalerate), oxygen containing sesquiterpenes, and valerian cyclopentanoid sesquiterpenes such as valerenal, valerenone, valerenol, valerenyl acetate, valerenic acid, and valerenyl isovalerate. The oil content of Valeriana officinalis has been reported to vary from 0.1% to 2%2-4. In a research evaluated essential oil content and the composition of two valerian (Valeriana officinalis, L.) cultivars select and Anthose, they reported that cv. Select had 0.67 and 0.87% essential oil, while similar aged cv. Anthose contained 0.97 and 1.1% essential oil. Forty-three and thirty-three components from cv. Select and cv. Anthose oils were detected, respectively. The oil composition significantly varied due to the cultivar type. The major components for cv. Select were valerenal, bornyl acetate, 15-acetoxy valeranone, valerenic acid, and camphene, while cv. Anthose had valerenal, (-)-bornyl acetate, R-humulene, camphene, 15-acetoxy valeranone, and valeric acid. With further aging of the plants, the valerenal, valerenic acid, and R-humulene contents increased. The Objective of this study was to evaluation the composition of the essential oil of Valerianae officinalis cultivated at Garmsar zone in Iran.

MATERIALS AND METHODS
This study was conducted on experimental field at Garmsar zone in Iran (51° W and 34° W; 856 m above sea level) during 2010 - 2011, in the study area is distributed with an annual mean of rain was 150 mm. sowing dates was 20 September and planting densities was 80000 plants ha-1. In this study for achieve to organic agriculture, didn’t use the chemical fertilizer. Initially, for need of plant nutrients were added by applying 2300 kg/ha animal manure at autumn of 2009. The washed root of plant harvested at autumn was air dried and stored at room temperature in the dark until use To determine essential oil percentage

Essential Oil Isolation Procedure
Essential oil samples were isolated from 100g root dry matter of Valeriana officinalis var. Tehran for 4h, using a Clevenger.

GC-MS analysis
Reaction products were identified and quantified on GC-MS system (Hewlett Packard 6890) with helium as a carrier gas. The temperature of the DB-5MS capillary column (59.5 m × 0.25 mm × 0.25 μm, J and W Scientific) was kept at 50°C for 2 min and then increased to 300°C at a rate of 15°C/min. The scan mode at 50 -550 m/z was used for searching and for identification of products, whereas SIM mode was used for quantification.

RESULTS AND DISCUSSION
The composition of essential oil extracted from Valeriana officinalis L. roots growing at Garmsar zone in Iran was studied by hydrodistillation and The yield of the essential oil was 1.65%. The oil yield of Valeriana officinalis has been reported to vary from 0.1% to 2%2,4. The final results showed that 69 compositions were identified in valerian essential oil by GC and GC-MS systems (Table1). The oil profile of our cultivar matched the literature proposed chemotype profiles. The basic oil components among the identified 69 compounds were α-Fenchene (6.1%), Camphene (11%), Borneol (6.6%), Bornyl acetate (10.1%) and Valerenal (12.9%). The oil profile of our cultivar matched the literature proposed chemotype profiles. Several chemotypes of the essential oil evaluated.
of valerian roots have been distinguished earlier in the literature, e.g. a valerianol type, and valeranone, cryptofauronol, and valerinal types. These compounds were found to be the main compounds in valerian root oils in researches too\(^{1,2,10}\). Several authors reported the presence of valerianol as a major constituent of \textit{V. officinalis} oil. A high content of valerianol was found in oil of \textit{V. officinalis} roots from Serbia\(^{3}\), in some samples from The Netherlands\(^{2}\) and in roots of \textit{Valeriana officinalis} from Estonia\(^{2}\).

**CONCLUSION**

Essential oil of \textit{Valeriana officinalis} is very important in pharmaceutical industry. Therefore finding of my results of this research showed, roots of \textit{Valeriana officinalis} cultivated at Garmsar zone in Iran, was rich in essential oil and its important components of oil were, monoterpenic hydrocarbons (\(\alpha\)-Fenchene and Camphene) and Borneol, Bornyl acetate and Valerenal.

**REFERENCES**


