



**ECOLOGICAL DIVERSITY AND PHYTOCHEMICAL PROPERTIES MEDICINAL
PLANT (STACHYS PILIFERA) IN KOHGILUYEH AND BOYER AHMAD**

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ABSTRACT

Steel spike with more than 270 species, including mint dark sex is widely spread in the world. 34 species are found in Iran. Quality and quantity of the active ingredients of medicinal plants is mainly influenced by genetic factors But also the environmental factors of growth can have a great impact. So that the amount and quality of plant chemicals, due to fluctuating metabolic activity under different environmental factors in different habitats and areas altered. Hairy spikes of very fragrant herbaceous perennial plant belonging to the family Lamiaceae. It is often in the range of mountains that are affected by drainage water springs and fields, is growing. This study aimed to evaluate the ecological and morphological characteristics of plant diversity in hairy spikes at altitudes of 2014-2015 Kohgiluyeh and Boyer Ahmad in a completely randomized design With three replications and three regions with different height (height Sargachyneh 2300, Sermvrdna and Great Plains Akbar Kakan any height 2500 m) above sea level took place.

The results indicated that 44 compounds in the essential oil was the most important compound in combination with an average of 26/27 percent Krysantnyl acetate, most important of all the constituents of the essential oil. The most important compounds derived from plant oils including alpha-pinene spike of Hairy, beta-Felendern, limonene, linalool, Limonene, linalool, Lynalyl acetate, caryophyllene oxide and the Alpha Bisabolol. The results showed that none of the tested areas significant effect on the amount of oil was obtained.

Keywords: Height, oil, chemicals, Stachys pilifera

INTRODUCTION

The use of indigenous medicinal plants and wild in natural habitats as well as ecological compatibility are able to synthesize the active ingredients secondary environmental stress, in prevention and treatment of diseases to be effective, in recent years special place in science Medical results (Munoz-Bertome, 2007). Including medicinal plants that have hairy ears of information and identification of secondary phytochemistry little research has been done. In recent years with the proliferation of chemical plant chemical compounds most abundant species of *Stachys* been known and famous, but proper planning and knowledge in order to harvest the conversion of active ingredients of the compounds in the medicinal value, industrial and raw materials consumption by changing the value of at least maintain soil and water is not carried out (Matrotti, 1993). Iran, with high species diversity and the climate, culture and education are good grounds for rare species of medicinal value. Since the cultivation of medicinal plants to achieve the final product of secondary metabolites (active pharmaceutical ingredients). Therefore, factors affecting growth and yield and quality are of utmost importance (Magurran 2004). The value and importance of medicinal plants in providing health

communities in terms of treatment and prevention of diseases and are enjoyed. The Department of Natural Resources, along with the old man and one of the most important sources of human food and medicine are over generations. Historically, plants have an important role in community development and extensive research to find a herbal medicinal products and natural materials have been made throughout history. The biggest miracle of flowers and plants and various fruits according to prescribed medications is that if they have any side effects and are looking to treat a patient, the patient does not and why should the destruction of plants and fruits and flowers Medicinal be prevented (Mazandarani, 2011). Lamiaceae family, large dark flowering plants and in the dark, according to surveys that have been conducted, there are 8000 species in 200 genera have been placed that are usually essential. These plants are scattered in most parts of the globe, but most of its publication in the Mediterranean region is well-known plants such as mint, lavender, lemon balm, oregano, sage, thyme, savory, basil, marjoram and ... in this family with (Gairola, 2010). The constant characteristics of the dark, irregular flower and cup is always two lobes. Lamiaceae family standing

stem usually square cross section (Rechinger, 1982). Medicinal plants and aromatic Lamiaceae high ecological flexibility due to diverse climates as one of the important plant genetic resources are downy spikes of very fragrant perennial shrub plant, which is owned by the family Lamiaceae. It is often in the range of mountain springs and aqueducts are influenced by drainage water, is growing. Downy spikes of short stem covered with hair, simple and narrow leaves, pink flowers tend to be white and all shoot a perfume is very penetrating. Elevation of their habitats in mountainous areas, between 2300 to 3000 meters (and sometimes higher) above sea level. The main habitat of this plant are relatively wet spots and areas near rivers, springs around the mountainous provinces of Chahar Mahal and Bakhtiari, Lorestan, Isfahan, Tehran, Yazd, Markazi, Fars, Kohgiluyeh and Boyerahmad (Ghasemi , 2011). The term biodiversity is short for "Biological Diversity" is. The United Nations Conference on Environment and Development of any changes in living organisms of all sources, including terrestrial, marine and other aquatic ecosystems and the ecological processes, biological diversity it is called (Denisenko, 1978). Species diversity and species diversity index was calculated by taking the ratio of the number of species and

the degree of its importance or level of biomass or production, adjusted And by which we can quantitatively identify the diversity of its results in order to take advantage The system according to its capacity, restoring degraded areas, Ups and downs, especially a lot of elevation changes can alter environmental factors. Among the factors topography, elevation above sea level due to the impact of climate on the distribution of plant species play an effective role. With increasing altitude, average temperature dropped due to other climatic factors have led to the formation of climate zones, resulting in areas of particular plant species diversity caused (Magurran, 2004).

MATERIALS AND METHODS

Province covers an area of 16264 square kilometers Kohgilouye in southwestern Iran. Essential oils are aromatic compounds that are found in different parts of plants. The mixture of essential oils from different materials with different chemical compounds from each other and are a very strong smell. The essential oils evaporate in air at room temperature, so they called volatile oils. Chemistry of essential oils, including esters, aldehydes, alcohols, phenols, ketones and terpenes is. Extraction of essential oils, done with different methods. The method for extracting a selected essential oils, depending

on factors such as plant type, dry or wet it is, the location of the plant essential oils and ingredients is essential. Usually plant essential oil is extracted by distillation. It may be done with steam or water. The most common methods of extracting essential oils include methods of distillation, solvent extraction, extraction and enzyme extraction methods are: distillation, steam distillation and condensation of water vapor water. There are 2 ways to measure the oil content in general.

Distillation

- Solvent distillation water carrier
- Water and steam distillation, solvent carrier
- Steam distillation carrier

- Simultaneous distillation with an organic solvent

The purpose of distillation is that the water contact with the active ingredients of the plant expanded and eventually moved from the place where the oil is ours.

Scratch method, press and scarify

Some essential oils decompose when heated to extract it should be the method of scraping, pressure applied to the blade. It involves two types of foam and blades and piercing the body is desired. In general, the procedure for selection of plant species that is fleshy organs.

RESULTS

Table 1: Statistics of ten-year monthly average daily air temperature in ° C average Yasouj (Source: Meteorological Organization country)

each year	March	February	January	December	November	October	September	August	January	June	May	April	Year / Month
16/1	10/6	5/5	3/9	7	10/2	18/1	22/4	26/8	27/5	24/8	20/2	15/9	2001
15/6	10/9	6/1	4/1	5/1	10/1	17/9	23/6	26/4	26/4	23/7	19/9	13/5	2002
15	8/6	5/7	3/2	6/3	10	16/9	21/6	25/6	26/8	23/5	17/9	14/5	2003
14/8	11/2	7	4/4	2/3	10/4	16/5	21/3	25/5	25/4	23/2	17/9	12/4	2004
15	9/6	4/4	2/1	7/6	10/1	16/5	21/8	25/6	26/5	23/4	17/8	14/8	2005
14/7	9/9	7/6	1/7	0/8	9/3	16/7	21	25/4	26/7	24/1	19/8	13/4	2006
14/8	7/9	5/6	1/1	4/9	11/3	16/4	21/6	25	26/6	24/6	19/7	13	2007
15/6	12/6	5/1	1/2	5/5	9/8	17/2	22/5	26/4	27/1	24/6	19/5	15/4	2008
15/2	9/9	7/3	2/8	6/1	10/8	16/6	21/2	26/6	27/1	22/5	19/5	11/6	2009
16/3	12/7	7/4	7/0	7	8/3	18/1	22/4	25/2	27/9	24/8	19/1	14	2010

Table 2: Statistics decade total monthly rainfall mm in Yasouj (Source: Meteorological Organization country).

each year	March	February	January	December	November	October	September	August	January	June	May	April	Year / Month
276/5	44/6	14/3	23/6	140/6	30/7	4/9	0/3	0	0	2	15/1	0/4	2001
345/0	42/9	22/8	106/0	69/2	37/9	0/2	0	0	0	0	0/4	65/6	2002
278/5	68/6	52/0	69	41/5	9/1	0	0	0	0	0	2/7	35/6	2003
459/1	32/8	56/5	124/2	102/8	78/4	1	0	0	0/2	1	5/1	57/1	2004
375	101/1	2/1	84/6	86/6	50/2	0	0	0	0/2	2	13/3	34/9	2005
527/6	44/1	142/9	101/2	65/1	96/8	2	0	0	0	0	0	75/4	2006
303/9	74/3	48/1	32/4	58/0	9/3	1/2	0	0	0	3	11/3	66/3	2007
140/9	0/1	22/0	28/3	4/2	46/8	21/8	3/4	0	0	0	3/0	11/3	2008

439/8	22/7	88/6	24/8	75/0	103/5	2/6	7/3	0	0	2/3	9/7	103/3	2009
209/2	34/1	59/0	21	9/3	12/9	0	0	0	0	0/4	1/9	70/6	2010
	46/53	50/83	61/51	65/23	47/56	3/37	1/1	0	0/04	1/07	6/25	52/05	Average

Table 3: soil physical and chemical properties of the test

(0-30)	Sample depth (cm)
7/5	PH of the reaction saturated
1/37	OC (percent)
0/13-0/32	Nitrogen (ppm)
17/8	Phosphorus (ppm)
7/78-20/3	Iron (ppm)
0/19-1/33	Zinc (ppm)
23-55	Clay (percent)
25-45	Silt (percent)
5-41	Sand (percent)

DISCUSSION

(Chou, 2000), in their study of the essential oil obtained from fresh plant organs 0/72 percent yield and essential oil content of dried plant samples in laboratory conditions (temperature 20 to 25 ° C), 0/52 percent reported. And (Barrio, 1997) stated that the essential function of a *Stachys pilifera* plant, due to high viscosity oil to pipe walls over Clevenger apparatus, it was difficult to separate the oil from the chamber, n -Hgzan solvent used. The results of the study by researchers of the ingredients essential oil spike, the hairs listed in the spectrum of GC and GC / MS led to the identification of 24 of the study is significant difference (44 combined). The main components of the essential oil obtained from research (Bakkali, 2007) include: Keryzantnyl acetate (49/25 percent), linalool (2/6 percent), Btaflandr (4/3 percent), Caryophyllene oxide (3/4 percent), followed alpha Pinen (2/8%), and 1 and 8 cineol (2/3%) and cis - ocimene (2.2

percent). Aouagi, 2006) through a combination of essential oils of peppermint most important research in the area planted to Neovmentol clock Karaj, 1, 8 cineol and Pypryton and oil yields about one percent of the plant fresh weight and concluded that the combination of oil and the amount of sample is grown in Kashan.

The results of the study of crack ingredients essential oil spike in the range of GC and GC / MS showed that 24 articles were identified. The main components of in Oil including Keryzantnyl acetate (49/25 percent), linalool (2/6 percent), Betaflandr (4/3 percent), Caryophyllene oxide (3/4 percent), followed alpha Pinen (2/8 per cent), 1, 8 cineol (2/3 percent), and Cis ocimene (2.2 percent).

Yasuj annual minimum temperature (the temperature is slightly higher test points) 0/8 ° C and maximum 29.7 ° C in December was in July. Minimum annual temperature (14.7 ° C) for the 1385 annual maximum temperature (16.3 ° C) was about 2010.

In ten years of rainfall statistics Yasouj, the following results were obtained. The high rainfall in the years 2001 to 2010, (with 527/6 mm rainfall) and low precipitation in most years between the years 2001-2010, (with 140/9 mm rainfall) respectively. The most high rainfall year, in December (with 61/5 mm rainfall) and low rainfall in the month of August (with zero rainfall in mm), respectively. However, in the months of July (0/04 mm), August (1.1 mm), October (3/37 mm) and June (1/07 mm) significant rainfall occurred.

Salty-clay-sandy soil of the experiment, the EC and pH of 7/5 ds m was equal to 0/544. Soil total nitrogen and phosphorus and potassium soil 0/149 percent, respectively, 17.8 and 351 mg per kg based on the weight of 0-30 cm soil depth.

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