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**Research Article**

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# The impact of several surfaces of chemical fertilizer on Thymus vulgaris performance and its different parts in qom destrid

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**ABSTRACT**

*Thymus is one of the significant spearmint plants group and its essence is included from ten well-known medicinal plants, spearmint essence is enriched with fail combinations that its including some fungous and germ antagonist attributes this experiment in 2013-2014 agricultural year for examining chemical fertilizers on thymus vulgaris performance and its parts in dastajrd farms ( that's In qom suburb) is done. Experiment was done with factorial in a complete accidently blocks and was done with three times repetitions that factor a was included three surfaces from using azote fertilizer (zero , 60 , 120 , km in hectare) and factor b eas included three surfaces from using potash fertilizer ( zero , 70 , 140 , kg in hectare) . In this experiment qualities such as crucible height , number of stalks in crucible, branches wet and dry weight , root wet and dry weight , root length , essence performance,temol percent were examined results were shown that azote effect except its dridbranches and dried root weight had effect on all of examined qualities . Phosphorus effect except crucible height and the numbers of stalks in crucible had effect on all of examined qualities weight , root wet weight and root dried weight but had effect on other qualities . Azote and phosphorus effect except branch dried weight, branch wet weight had effect on all of examined qualities Phosphorus and potash have effect on wet weight and branch dried weight but didn't any effect on the others examined qualities. Azote and potash effect except root dried weight and root length had effect on all the examined qualities. Comparative averages results have shown that the highest essence performance of attendance, 120 km surface in azote hectare + 80 km surface in phosphorus hectare + 140 km surface in potash hectare and 25/67 gram in 2 meter square has obtained . The highest temol of attendance 120 kg surface in azote hectare + 80 kg surface in phosphorus hectare + 140 kg surface and 45/21 percent has obtained . With considering to results have been shown that azote and potash had significant effect on essence and temol performance with temol percent has direct relation and increasing in essence performance causes increasing of temol percent .*

**Keywords:** Hymus vulgaris , chemical fertilizer , essence performance .temol present

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## INTRODUCTION

2 -model qualities
This experiment in a factorial was in a accidentally complete model with three repetition in dastard city in qom suburb had done. That factor A is included three surface of using azote fertilizer (zero,60,120,kilo gram in hectare) and factor B is included three surfaces from phosphorus fertilizer (zero,80,160,kilo gram in hectare)and factor C is included three surface of using potash fertilizer (zero ,70,140 kilo gram in hectare)

7 - Qualities measuring:
Examined qualities in this experiment in damask level (50 percent of damask) have measured – crucible height , stalk diameter , in cultivating time by ruler and slide – calipers have measured and the number of stalk in crucible accounted to 10 crucibles and its average has been obtained.

Branch wet weight and root in cultivating time have been measured and whole cruible with root has been measured then roots and wet weight , branch and root length have been measured then roots and branch dried kept for 48 hours in 70 $c^o$ then root and branch dried weight have been discovered and essence performance and temol percent in cultivating time have been measured .

8-3 : essence and essence combinations measuring . 100 gram amount of dried weight taken in each turn has been chosen accidentally and measured by essence clounger .

In this case first every model has been grinded 75 ml water then has been kept for four hours in a clounger machine and essence percent has been components (temol) chromatograph connected to a (gc,ms)
8 – Essence function:

Analyzed information results have shown that elements such as azote and phosphorus have effect on essence function in a statistic way.

Potash effect on essence function in statistical has nutriment

Corresponding effect of azote and potash in statistical in five percent surface has been meant .

Multi effects of azote ,phosphorus and potash on essence function in statistical in five percent surface have been meant comparison of average information has shown that the highest essence function rank in azote surfaces from 60 ,120 kilogram in hectare with 17/56 and 19gram in square meter has been obtained the highest essence function rank in phosphorus surfaces from 160 kg in hectare surface and in amount 19/78 gram in square meter has been obtained.

The highest essence function rank in potash surface from to 17/96 gram in square meter has been obtained . comparison averages result between attendances have shown a difference that the highest essence function from attendance 120 km in hectare azote surface + 80 kg in hectare phosphorus surface + 140 kg potash surface (a3 b2 c3) and in amount 25/67 gram in a square meter has been obtained and the least amount of essence function from attendance zero azote surface + 80 kg in hectare phosphorus surface + zero kg in hectare potash surface (a1 b2 c1) and in amount 5 gram in a square has obtained .

( rezaie nejad and his colleagues in 1379) in a examine of azote fertilizer effect in essence and thymus vulgaris temol amount have stated that azote in essence and temol amount has not made any effect but with considering to body growing function increasing in azote increasing , essence function in per hectare has increased.

(Owdagaw in 1995) has grown thymus vulgaris in a strainer environment and got result with increasing whole nutritious elements density, wet and dried leaf weight , absorbing elements and leaf essence percent has increased .
(omid begi and rezaie najad in 2000) has examined the nitrogen fertilizer on thymus vulgaris product .

In this experiment the most plant function in attendance 150 kilogram in hectare nitrogen in a form has been obtained.

Netrogen fertilizer attendances have not had significant effect on essence percent and the highest essence has obtained from air plant parts (%61)

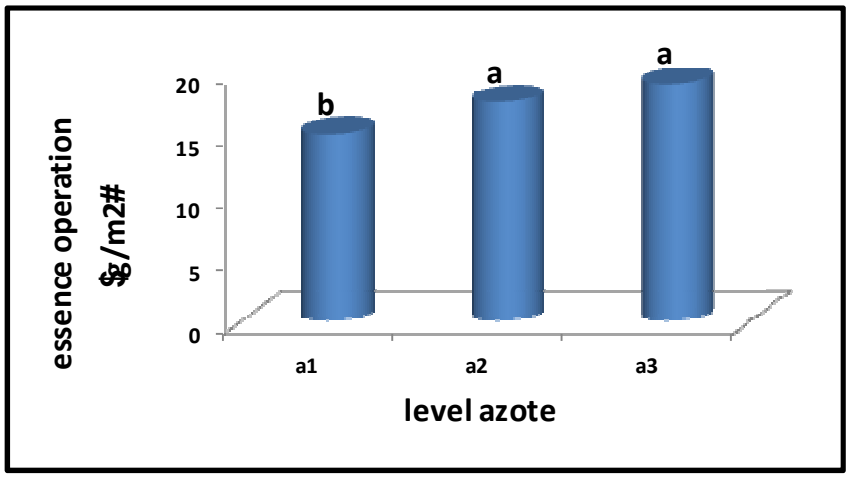
Essence function in 100 and 150 kilogram netrogen in hectare attendance has reached to its highest amount.

(jabari and his colleagues) in examination have stated the effect of netrogen application that netrogen application in a dilution from in from has significant affect on temol percent temol function and essence function .

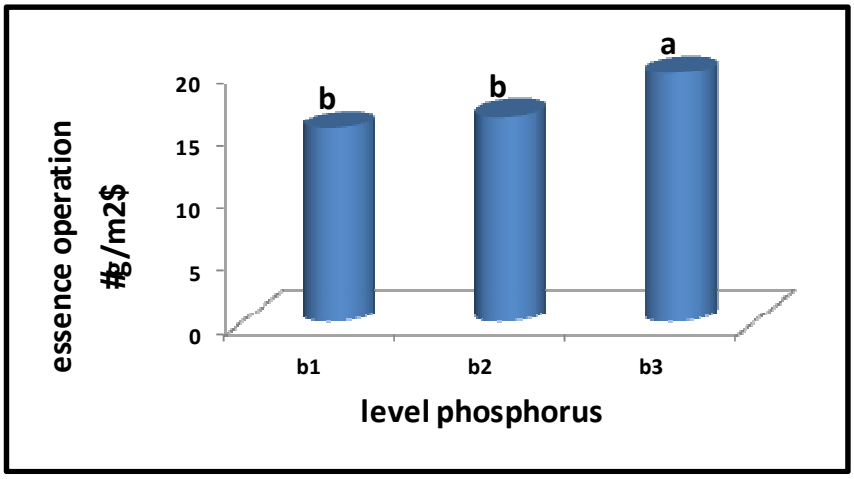
(hasani and colleagues 1381) have confirmed that netrogen had significant impact on growing , function , chlorophy amount and basil essence .

(golder and van golder in 1998) have retified that different surfaces effect of netrogen fertilizer on ment pepper has been performed.

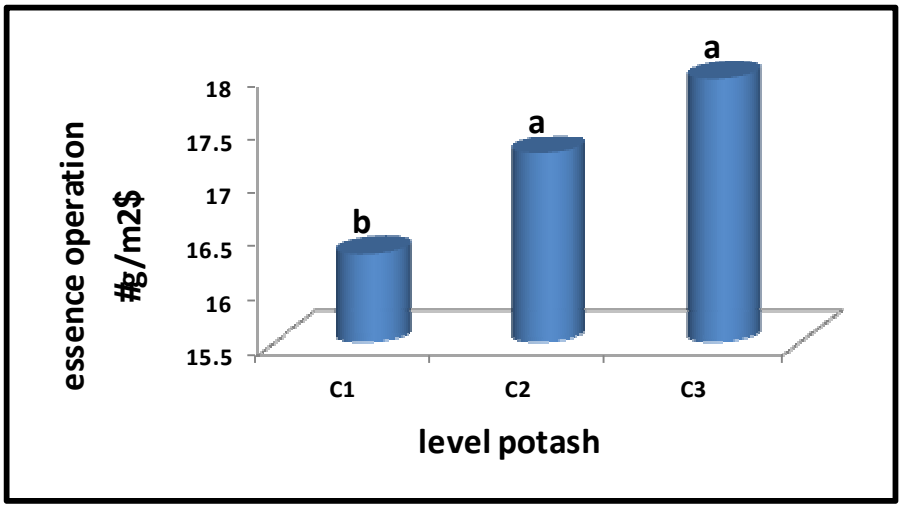
It was specified 150 kilogram netrogen in hectare amount cause increasing mentpepper plant function .



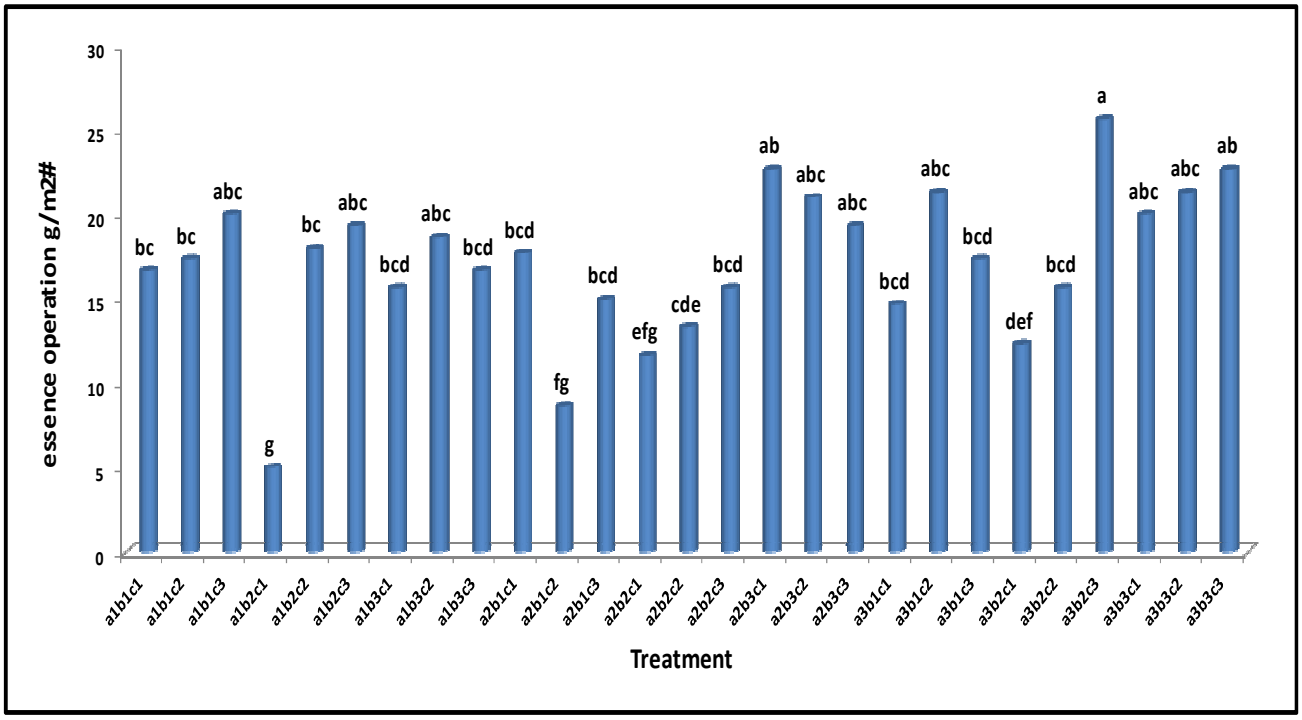

**4-8 a the araph comparasion average qualities of essence function in azote surface**
**a1= azote zero levels -**
**a2 = 60kg in hectare ,**
**a3= 120 kg in hectare**




**4-8 b the graph comparasion average quality of essence function in phosphorus surface**
**$b^1$=phosphorus zero levels**
**$b^2$=Phosphorus 80 kilogram in hectare surface =**
**$b^3$ =Phosphorus 160 kilogram in hectare surface**




**4 – 8 c the graph comparasion average quality of essence function in potash surfaces**
**$c^1$=Potash zero surface**
**$c^2$=Potash 70 kilogram in hectare surtace**
**$c^3$=Potash 140 kilogram in hectare surtace**




**4 – 8 the graph comparasion average quality of essence function between attendances**

Some scientists with several surfaces of netrogen function on mentpepper plant have reported that fertilizing . (Sharaf zade and his colleagues in 1387) have stated nutritious elements attendances have been made significant varieties in extracted essence essence percent from medical leaves.

4-9 = > temol percent :
Analyzing the information has shown that azote element effect on temol percent in statistical has been meant in one percent phosphorus effect on temol percent in statistical has been meant in five percent .

Potash element effect on temol percent in statistical has not been meant .

Azote and phosphorus corresponding effect in statistical has been meant in five percent surface

Phosphorus and potash corresponding effect in statistical has not been meant

Azote and potash corresponding effect in statistical has not been meant

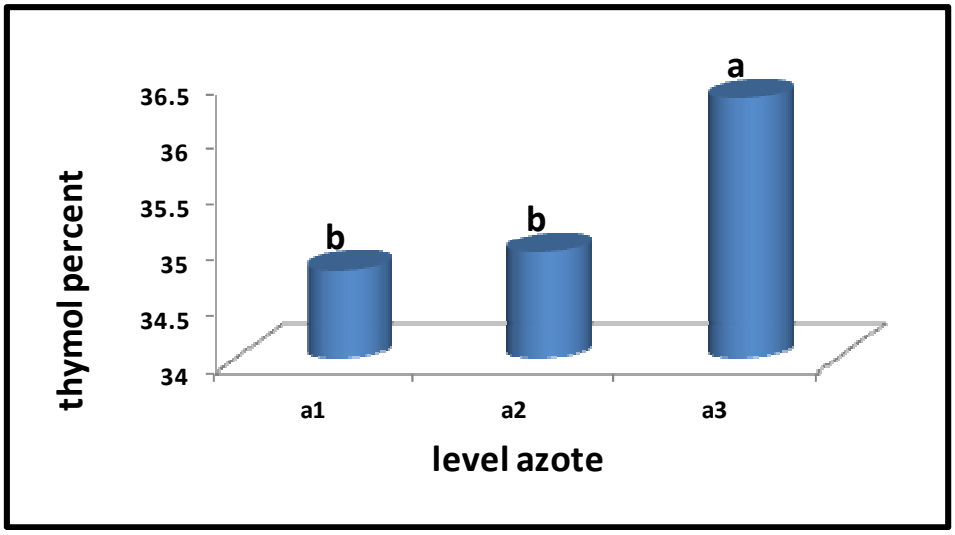
Azote and potash corresponding effect in statistical has been meant in five percent surface

Triple effects of azote , phosphorus and potash on temol percent in statistical have not been meant .

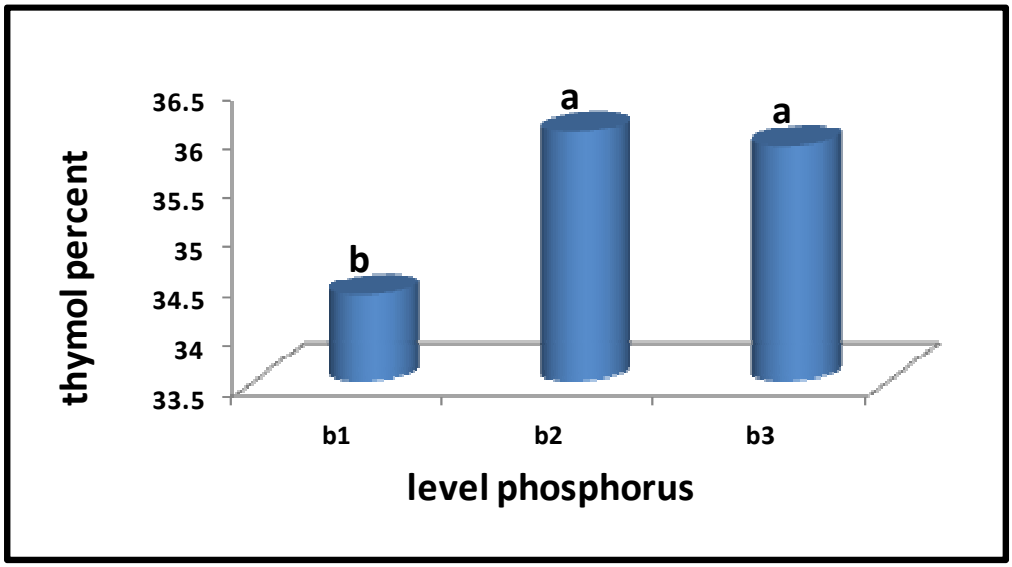
The comparison average information has shown that the highest temol percent in azote surface from 120kg in hectare azote surface has obtained in 36/33 percent amount.

The highest temol percent in phosphorus surfaces from 80 and 160 kg in hectare surface has obtained 36/02 and 35/88 percent in order .

The temol percent comparison average information in different surface in potash has not been shown a big difference




**4-9 the graph comparasion average quality of temol percent in azote surfaces**
**$a^1$= Azote zero surface**
**$a^{2=}$Azote 60 kilogram in helatare surface**
**$a^3$=Azote 120 kilogram in helatare surface**



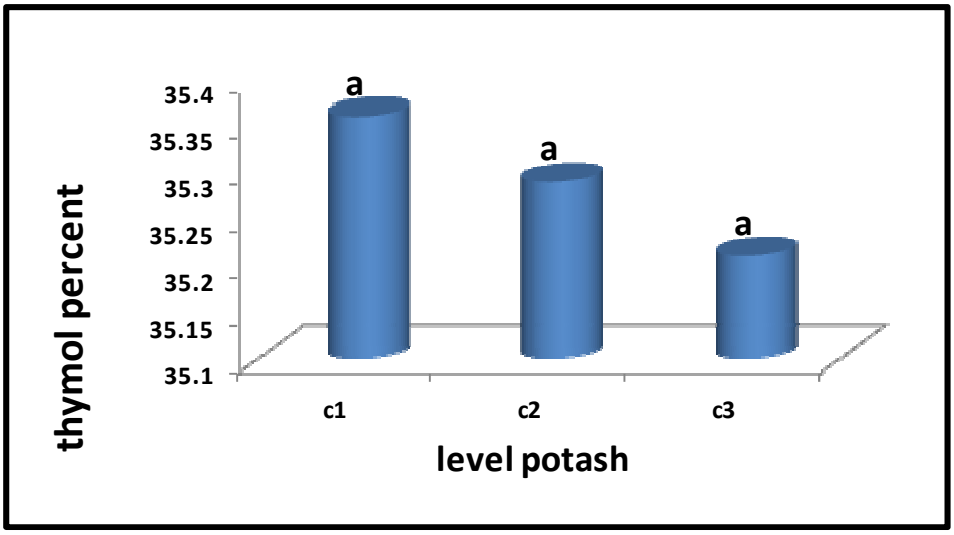

**the graph comparasion average quality of temol percent in phosphorus surfaces**
**$b^1$=Phosphorus zero surface**
**$b^2$=Phosphorus 80 kilogram in hectare surface**
**$b^3$=Phosphorus 160 kilogram in hectare surface**

The comparison averages results between attendances have shown a big and significant difference.

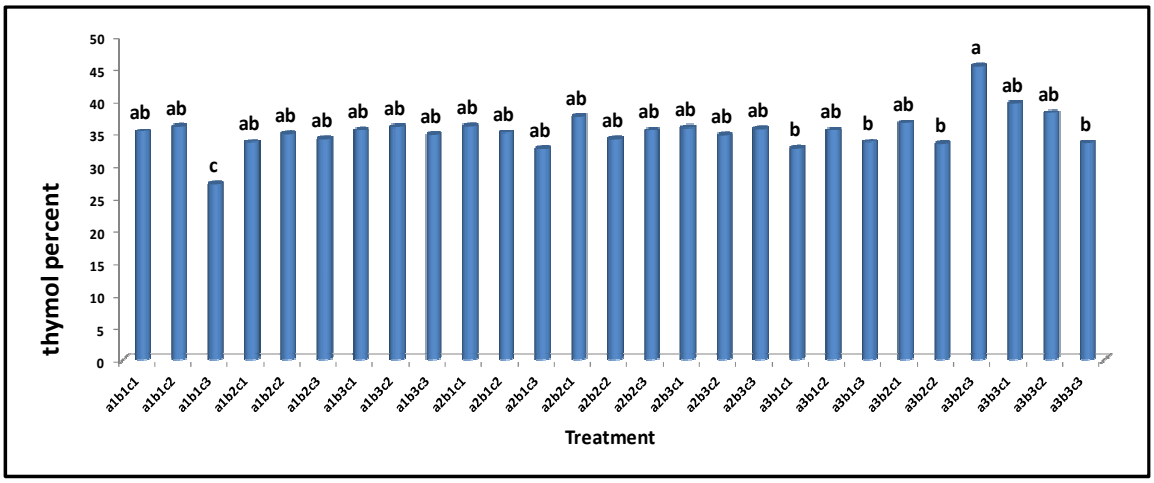
The highest temol percent from attendance120kg in hectare azote kg potash surface ($a^3$ b2c3) has obtained 45/21 percent amount and the least temol percent from attendance azote zero surface + phosphorus zero surface +140 kg in hectare potash surface ( a1 b1 c3 ) has obtained 27/09 percent amount.

(sharafzade and his colleagues ) 1387 in their examination have announced that several nutritious element have changed the temol percent in different districts .

Temol percent and function under district influence, nitrogen way for using and corresponding effect has been meant in one percent surface.




**the graph comparasion average qulity of temol percent in potash surface :**
**$c^1$=Potash zero surface :**
**$c^2$=Potash 70 kg in hectare surface =**
**$c^3$=Potash 140 kg in hectare surface=**




**9-4 the graph comparasion average quality of temol percent between attendances**

## CONCLUSION

This research final conclusion has whown that azote and potash elements have a lot effect on essence function and temol percent also in examining the comparasing average quality has been seen that azote and potash in increasing the performance function has significant effect . the highest temol percent and essence function of attendance 120 kg in hectare azote surface + 80 kg in hectare phosphorus surface + 140 kg in hectare potash surface ( a1 b1 c3) has been obtained . With regarding to former searchers ideas state that increasing to former searcher ideas we can state that increasing the azote fertilizer in growing root environment cause absorbing more oxygen and releasing gas ($co^2$) that leads to absorbing more active phosphorus also with a lot amount of azote in dirt cause roots system development and increase its exchanging with other element in other hand existing potash in azote fertilizer cause the azote fertilizer efficiency .with regarding to obtaining result we can state that azote and potash are the most convinent chemical fertilizers for increasing essence functioand temol percent in thymu vulgaris plant is convinent .

Using 120 kg in hectare azote + 80 kg in hectare phosphorus + 140 kg in hectare potash for prodacing essence from thymu vulgaris plant in qom destrict in convinent.

| Squares avrage | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Percent Thymol | Operation Essence | Length root | Dried root Weight | Soak roots Weight | Dry weight | Vzntr shoot | The number of lateral branches | Plant height | Degrees of freedom | Source Changes |
| 0.943 ns | 9.481 ns | 1.81 ns | 2.12 ns | 4.3 ns | 5.94 ns | 15.83 ns | 0.753 ns | 14.77 ns | 2 | Repeat |
| 19.37 * | 59.44 ** | 78.26 ** | 2.72 * | 52.09 ** | 9.34 * | 65.66 ** | 87.67 ** | 130.98** | 26 | Treatment |
| 17.5 ** | 110.78 ** | 189.17 * | 0.945 ns | 60.64 ** | 11.24 ns | 50.8 ** | 163.27 ** | 1059.37 ** | 2 | azote |
| 22.67 * | 142.37 ** | 508.06 ** | 2.41 * | 91.45 ** | 7.8 * | 100.86 * | 50.56 ns | 1.148 ns | 2 | Phosphorus |
| 2.393 ns | 18.04 ns | 52.3 ns | 4.31 * | 47.45 * | 5.46 ** | 56.71 ns | 86.16 * | 84.25 ns | 2 | Potash |
| 17.378 * | 80.759 ** | 60.02 ** | 2.13 * | 14.69 ns | 3.37 ns | 136.28 * | 219.79 * | 99.07 * | 4 | azote* Phosphorus |
| 31.17 ns | 54.852 ns | 28.27 ns | 1.124 ns | 9.07 ns | 8.77 ** | 38.83 * | 59.34 ns | 30.96 ns | 4 | Phosphoru* Potash |
| 9.58 * | 63.37 * | 12.24 ns | 1.287 ns | 55.03 ** | 21.56 ** | 13.91 * | 16.1* | 69.68 * | 4 | azote* Potash |
| 23.27 ns | 25.91 * | 16.7* | 4.68 ** | 80.03 ** | 7.37 * | 66.79 * | 94.81 ** | 39.63* | 8 | azote* Phosphorus* Potash |
| 12.684 | 16.264 | 15.641 | 1.366 | 10.757 | 5.574 | 30.427 | 29.83 | 41.342 | 52 | Experimental error |
| 4.26 | 6.82 | 15.61 | 12.78 | 14.49 | 8.42 | 18.41 | 21.38 | 12.65 | - | CV% |

*Chart 1-4 =analyzing different qualities of thymus vulgaris under fertilizering attendances*
*Non-significant and *,** The significant in five percent level and One of actuarial **Ns***

## REFERENCES

[1] Aflatuni, A. **2005.** *Canada Journal of Essential Oil Research* 25: 663-666
[2] Arjomandi, A. **2002**. *Acta Hort*. 576:263-265.
[3] Arabasi, D. and E., Bayram. **2005**. *Essential Oil Research* 17: 203-205.
[4] Baier, C., J. Erich, M, D. and R. Zimmermann. **2005**. *Acta Hort.* 681:545-554.
[5] Burnie, D. *Dorling Kinderseley*. 1995.P.320.
[6] Cox, D. A. **1993**. *Journal of Plant Nutrition*. 16: 533–545.
[7] Cylan A, Bayram E and Ozay N. *Hort. Absts.* **1995**: 65: abst:5368.
[8] Drazic, S. and S. Pavlovic. **2005**. Effect of vegetation space on productive traits of peppermint (*Mentha piperita* L.). Institute for medicinal plants Research Dr Josif pancic, Tadusa koscuska 1, 1100 Belgrade, F.R. Yugoslavia. 31: 1-4.
[9] Darzi, M.T., Ghalavand, A., Rejali, F. and Sefidkon,F., **2006**. *Iranian Journal of Medicinal and AromaticPlants*, 22(4): 276-292.
[10] De La Luz, L., V., Fiallo and C.R., Ferrada. **2002**. *Indian Perfumer* 33(3): 182-196.
[11] FAO. **2004**. FAO production Yearbook (58) .Food and Agricultural Organization at the United Nations. Rome,Italy.
[12] Firas, A. and Al-Bayati. **2008**. *Journal of Ethno pharmacology*. 116: 403-406.
[13] Fernander, C.H. **2006**. *Acta Horticulture 132*(2): 203-215.
[14] Fracis, C.A., F.C., Bulter and L.D., King. **2000**. *Crop Science* 88: 1207
[15] Gerder, H.V., H., Vangelder and N., Mucciarelli. **1993**. *Applied Plant Science*, 92(2): 68-71.
[16] El-Ghadban, E.A.E., Shalan, M.N. and Abdel-Latif,T.A.T., **2006**. *Egyptian JournalAgricultural Reserch*, 84(3): 977-992.
[17] Ghosh, M.L. Chatterjee. S.K. **1993**. *Acta, Horticulture* 331: 351-356.
[18] Golder, H.V. and H.M., Vangelder. **1998**. *Applied Plant Science* 82: 68.71.
[19] Hornok, L. (**1974**). (In Hungarian). *Publ Univ.Horticulturae*. 38: 75-82.
[20] Hudaib, M., Speroni, E., Pietra, A.M.D. and Cavrini, V. **2002**. *Journal Pharmac Biomed Analysis*, 29: 691-700.
[21] Hudaib, M. and Aburjai, T. **2007,** *Flavor and Fragrance Journal*, 22: 322–327.
[22] Karimi, M.M., G., Turowska and K.H.M., Siddique. **1991**. *Australian Journal of Agriculture Research* 42: 13-20.
[23] Kothari, S.K and singh, K. **1987**. *J. Agric Sci* 57:795-800.
[24] Letchamo, W. and A. Gosselin. **1995**. *Scientia horticulture*, 62:89-101.
[25] Letchamo, W. and A. Gosselin. **1995**. *J., Plant Physiol*., 147: 29-37.
[26] Leung A.Y. and S. Foster. **1996**. Encyclopedia of Common natural ingredients: used in food, drugs, and cosmetics. A Wiley Interscience Publication- John Wiley and Sons.649 pp.
[27] Mahfouz, S.A. and Sharaf-Eldin, M.A., **2007**. *International Agrophysics*, 21(4): 361-366.
[28] Marotti, M., piccaglia, R., Gioranelli, E., **1994**. *gournal* 9:3, 125-129.
[29] McGimpsey, J.A., M.H. ***Douglas***, J.W. Van Klink, D.A. Beauregard and N.B. Perry.**1994**. *Flavour Fragr. J.*, 347-352.
[30] Misra, A. and Srivastava, N.k., **2000**. *Journal of Herbs, Spices and Medicinal Plants*, 7: 51-58.
[31] Morton Jf. *Thomus Publisher*.**1977**. p:431.
[32] 31) Naghdi Badi, H.A. and M. Makkizadeh. **2003**. *Journal Medicinal Plant.* 7: 1-12.
[33] Naghdi Badi, H., D. Yazdani, S. Mohammad Ali and F. Nazari. **2004**. *Crops Prod*. 19:231-236.
[34] Omidbaigi, R. and A. Rezaei Nejad. **2000**. *Int. J. Hort. Sci.* 6: 43-46.
[35] Omidbagi, R. **2005**. Production and processing of medicinal plants. Published Qods Razavi. Beh Nashr. Iran. 158.
[36] Omidbaigi, R., Borna, F., Borna, T. and Inotai, K.,**2009**. *Journal of Essential OilBearing Plants*, 12(5): 580-585.
[37] Ozel, P. **2002**. *Indian Perfumer* 34(3): 102-110.
[38] Prakash V. *Leafy spices.* CRC. Press. U.S.A. **1990**. PP;99-102.
[39] Rezaei Nejad, A. **2000**. *Int. J. Hort. Sci*. 6: 43-46.
[40] Sahhar, EL, Fahamy G.E,. and zanati, EL, **1977**. *Agricultural Research rewiew* 55:5,119-130.
[41] Shalaby As and Razin AM. *Hort. Absts.* 64: absts: 1375.
[42] singh, M,. and singh D.V. **1995**. *J. Essent Oil, Res*, 7:621-626.
[43] Saxena, A. **2004**. *Indian Perfurmer* 33(3): 182-185.
[44] Tripathi, G. and P. Bhardwaj. **2003**. *Bioresource Technology*. 92: 275-283.
[45] Udagawa, Y. **1995**. *Acta Hort*.396:203-210.
[46] Wang, M. C. and C. H. Yang. **2002**. *Geoderma*. 114: 93-108.
[47] Yanli li, Craker LE and potter T. **1997**. *Hort*.67: