

University of Qadisiyah

College of Biotechnologies

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Entitled

Effect of nitrogen fertilizers
on growth and production of
peppermint

Preparation

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Conclusion :-

A field experiment was conducted in the Shami / Diwaniyah district to study the effect of the four levels of nitrogen fertilization (15, 10, 5, 0) kg / dunum. The experiment was applied with plastic sticks of 9 kg capacity.

The samples were taken from the total soil used in agriculture and analyzed for physical and chemical properties, and measurements were made for vegetative growth of the plant after three months of growth. The results showed increased vegetative growth using high concentrations of fertilizers (15, 10) kg / dunum. Between the two foci. The ratio of the active ingredient has increased significantly with the high concentration of fertilizers .

Introduction

The Lamia plant is a family of Lamiaceae Family. There are more than 25 Species and about 600 varieties. In a pair of opposite pairs containing Menthol oil with low amounts of lemon and pineapple. Due to the properties of peppermint oil, It is used as a booster for the heart and a stimulant for the blood circulation. The mint contains a substance and a wonderful nutritional value. It renews blood, prevents nausea, stomach aches, colic and acidity. It is used for weak vision, head pain, headache, purifies the sputum, toothpaste and yellow hair. The skin is used against pimples, skin infections and insect bites to reduce itching and skin irritation.

Nitrogen is one of the few nutrients in the soil that is lost by volatilization, leakage, evaporation, and nitrogen removal. Therefore, it requires constant maintenance and the response of peppermint plant to the stimulating concentrations of vegetative growth. Metha et al. (2010) showed that nitrogen fertilization at a concentration of 10 kg / Of the plant

Significant increase. Ruveyde (2011) also showed that increased concentrations of nitrogen fertilizers in soil increase the paper area of plants.

Abdelgami et al. (1999) noted that nitrogen fertilization increases the number of plant and root plant branches. In a study by Acharya et al. (2006), the dry matter ratio of vegetative and root group was increased by increasing the concentration of nitrogen fertilizer used.

As for the active ingredient in the mint plant, AKbarian and others (2011) found that the ratio of the active substance was increased using the high concentration of fertilizers 20 kg / dunum and 15 kg / dunum. This result corresponds to what happened to both

Materials and methods of work:

This experiment was applied in the district of Al-Shamiya / Diwaniyah Governorate in a 9-kg black plastic litter where soil samples were taken and analyzed in the Environmental Lab of the Department of Life Sciences / Faculty of Education. Table 1 shows the physical and chemical properties of the soil used before planting. Use of the random sector design with three replicates and each treatment of nitrogen fertilization (15, 10, 5, 0) kg / dunum. After three months of growth of the plant, measurements were made for the studied traits as follows:

1 - Plant height (cm): - The height of the plant was measured using the metric ruler, from the surface of the soil to the top of the plant and all the plants of each treatment. The plant height rate was then extracted for each treatment (1)

2 - Number of leaves per plant (leaf plant): - The number of leaves per plant and all plants of each treatment. Then extract the average number of leaves per plant from the treatment.

3 - The total paper area of the plant (cm²): - Calculated the paper area of each plant by taking a group of plant leaves from the central part of the plant and all plants. The experiment and calculated the maximum length and width of the paper using the normal ruler and apply the formula for plants.

Total Paper Area = Length x Width

4 - Soft and dry weight of the total vegetative of the plant (g / plant) and calculate the soft weight of the plant by the sensitive balance type 160 Metler HK

Swiss with three replicates per transaction. The vegetable total was then dried at 70 ° C for three days. The plants were weighed with a sensitive balance. Dry matter ratio was extracted by:

Dry equation ratio = (soft weight) / (dry weight) × 100

5-Percentage of the active ingredient: - The percentage of the active substance in the technical advisory laboratory in the Faculty of Science / University of Baghdad was calculated using high performance liquid liquid chromatography. The full randomization system was used in statistical analysis

and the least significant difference was calculated. By 5%.

Results and discussion :-

Table (2) shows the effect of the use of nitrogen fertilizers in different concentrations on the vegetative properties of mint. The increase in concentrations of nitrogen fertilizers increased the length of the plant. The increase was significant when the concentration was 10 kg / 15 kg. The increase was not significant when the concentration was 5 kg / Dunum. The width of the plant was also affected by increasing concentrations of nitrogen fertilizers used for the plant and the increase was significant at the three concentrations used 15, 10, 5 kg / dunum. As for the number of plant branches, it was significantly increased with the concentration of 15, 10 kg / dunum. There were no significant differences between the concentrations of 15 and 10 kg / dunum, whereas the paper area increased significantly by 5 kg / dunum concentration. , 10 kg / dunum.

Table (2) shows the effect of the use of nitrogen fertilizers on the characteristics of vegetative growth.

Nitrogen fertilizers concentrations kg / dunum Length of girls Plant width Number of forests Paper area

Nitrogen Fertilizer Concentrations (kg / dunum)	Length of girls	Plant width	Number of forests	Paper area
Check the Adjuster 0	15	0.37	4	90
5	18	0.40	5	100
10	25	0.46	7	120
15	31	0.55	10	133
L.S.D	7.1	0.62	3.30	20.40

Table (3) shows the effect of the use of nitrogen fertilizers in different concentrations on the dry matter ratio of the vegetative total, the root mass and the amount of active ingredient of the mint plant. The dry matter ratio of the vegetative group was increased by increasing the concentrations of nitrogen fertilizers used in agriculture. The increase was insignificant with the concentration of 10, 15 kg / dunum, while the dry matter ratio of the root group increased significantly with the three nitrogen concentration concentrations. Kg / dunum. As for the quantity of the active substance, the increase was also significantly increased with the use of nitrogen nitrogen concentrations of 15, 10, 5 kg / dunum.

Table (3) shows the effect of the use of nitrogen fertilizers on the dry matter ratio of the vegetative and root group and the amount of active ingredient of the mint plant.

Nitrogen Fertilizer Concentrations (kg / dunum)	Dry matter ratio of total vegetative (g)	The dry matter of the root mass (g)	Amount of active ingredient (Menthol) amalgam / 10 g
Check the Adjuster 0	2.38	1.49	40-450
5	2.60	1.73	40-480
10	2.99	1.95	40-515
15	3.22	2.13	40-540
L.S.D	0.36	0.24	0.030

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