

## RESEARCH ARTICLE

# The Effect of different Types of Organic Fertilizers on the Growth and Yield of Vegetable Plants

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### ABSTRACT

From interfaces to farming organically, she is system comprehensive for production. She depends on administration and perpetuates the system's environmental nature instead of relying on flow inputs (fertilizers, material manufacturers) so she puts effects on social, health, and environmental potential into consideration. During cancellation, use all that is industrial from fertilizers, pesticides, and organizations' growth and replace it with what is natural and available in the environment. During rotation, natural resources are available, such as waste animals of all kinds and the remains of vegans. That addition waste Organic to me the soil He increases From Subject Organic In which an increase From Prepare Biology microscopic and its activity as well Working On addition food elements for soil in the form of continuous Than Restores balance for items food In which The objective of the article: is to compile scientific material on organic fertilizers and their importance for vegetable plants and to highlight some of the studies that I dealt with.

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### Introduction

Cucumber, *Cucumis sativus* L. is one of the most important summer vegetable crops in Iraq and the world, and one of the most widespread. It belongs to the Cucurbitaceous family. Cucumbers are cultivated in Iraq in open fields in Erwatin (spring and autumn). It is also grown in a protected environment under tunnels, greenhouses, and greenhouses (Wanted et al., 1980).

The area planted with this crop in Iraq reached 188242 dunums in 2010, and its production is equivalent to 192525 tons, with a yield rate of 2294.2 kg/dunum, (Statistical Group, 2011). Cucumbers are grown for their fruit, as they are consumed fresh in salads or cooked, as well as used in pickling (International Organization for Statistics, 2013). Cucumber fruits also benefit in balancing high and low blood pressure (Waseem et al., 2008).

Due to the importance of this crop and the increase in demand for it and the high consumption of it, it has received great attention from plant breeders.

Striving to increase the yield in quantity and quality is required to meet the growing needs of the population through various types of service, including fertilization (Zarjis, 2006), and doubling production by using chemical fertilizers was not without compensation, as countless problems emerged, including environmental damage to human health due to intensive use and the adult is not for those chemical fertilizers (Hatiz and Bayoumi, 2006).

Which calls those concerned with environmental safety to what is known as sustainable agricultural development, which is an attempt to stay away from all that is chemical in plant nutrition and to return to nutrition with natural organic fertilizers.

The use of natural organic fertilizers has a much better effect than chemical fertilizers in increasing the characteristics of vegetative growth, the quantity of yield, and the quality of fruits (ALY, 2002).

Many developed countries are turning to organic agriculture and reducing as much as possible the use of chemical compounds because one of the goals of organic agriculture is to produce plants that are free from the toxic effects of pesticides and chemical fertilizers and to produce clean crops (Farhan, 2008).

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(Al-Rudaman and Al-Shinnawi, 2008) indicated that organic agriculture has medium and long-term effects on agricultural ecosystems.

The addition of organic residues to the soil plays a major role in increasing soil fertility and providing nutrients to it, as well as improving chemical and physical properties of the soil, such as ionic exchange capacity, water storage capacity, and the release of stimuli from amino acids (Dweni, 2003).

Organic fertilizers such as (humic and fulvic humic acids and amino acids) were also used in low concentrations to improve soil properties, plant nutrition, accelerate growth, and increase production (Zaidan and Diop. 2005).

Humic acids are complex substances derived from the decomposition of organic matter and used to activate nutrient uptake, drought tolerance, seed germination, and improve plant performance (Santiago-Andreu et al., 1994).

Bohme and Thi explained to Lu (1997) that humic acids have a positive effect on the absorption of nutrients by the plant, as they work on the readiness of the elements and their transfer, especially the micro-nutrients, and the amine group in the humic acids can absorb the negative phosphate ion and improve its readiness for the plant.

Also, humic acids inhibit the activity of the enzyme (IAA oxidase), which leads to an increase in the activity of auxin (IAA), which plays a role in stimulating plant and root growth (Wandruszka et al., 1999). Also, humic acids improve the holding capacity of elements in the soil through their association with sodium. Which helps the plant to withstand high concentrations of this element and protects it against toxicity and osmosis problems (Stevenson, 1994).

## Review the Sources

Al-Thafi et al. (2013) found in a global experiment that was conducted in a greenhouse on the cucumber plant Sara variety in order to study the effects of the ground application of animal fertilizers (poultry manure, sheep manure, cow manure, without fertilizing) at a level of 10 tons/hectare and spraying with organic fertilizer Humi Feed and three concentrations (1,0.5, 0) ml/liter and the interactions between them, where the results showed that adding any type of animal fertilizer and spraying with organic fertilizer Humi-feed and the interactions between them had a significant effect on growth and yield characteristics. Poultry manure was achieved by spraying with an organic fertilizer at a concentration of 0.5 ml/liter. The highest rate of plant height, number of branches, number of leaves, leaf area, number of fruits, the weight of the fruit, quantity of yield, and the highest production of the greenhouse

Al-Bayati (2011) indicated in an experiment in one of the unheated greenhouses of the College of Agriculture and Forestry/University of Mosul to study the effect of different types of organic fertilizers on some characteristics of vegetative growth, quality, and quantity of yield of the fruits of the female hybrid cucumber, Grass F1 variety, where the study included the addition of different types of fertilizers The ground organic fertilizers are: competitor, factory poultry manure (Atabolina), blue pigeon manure,

Nitrogreen liquid manure, decomposed sheep manure, humic acid, and marine extract seaming). The fruit and the average weight of the fruit for the marketing yield were not affected by the organic fertilizers, while the fertilization with seamino fertilizer extract led to a significant increase in the diameter of the fruit compared to the comparison treatment and the addition of fertilizer blue pigeon and nitrogen. As for the yield characteristics of the fruits, the treatment of adding the organic fertilizer Atalpolina was significantly superior in terms of the number of total and oval fruits. This treatment also outperformed the total and marketing yield of fruits, which amounted to 142.27 and 136.46 tons/ha, respectively, compared to the same way of comparison.

Hamma et al. (2012) found in an experiment conducted on cucumber plants when adding poultry manure to the soil two weeks before sowing at five levels (12.9, 6.9, and 3.0) tons/ha, that levels 9 and 12 achieved a significant increase in the length of the plant, the number of leaves, the number of fruits, and the amount obtained from the plant.

EL-Nemr et al. (2012) observed in a study conducted on the cucumber plant by spraying with four concentrations of humic acid (3, 2, 1, and 0) g/liter for Beta-alpha, and they found that all concentrations outperformed the comparison treatment, but the concentration was 3 g/liter. Plant height, number of branches and leaves/plant, leaf content of N, P, K, Mg, Ca elements, number of fruits/plant, fruit length, and total yield of cucumber plants were recorded at the highest rate.

Imran (2004) observed in an experiment he conducted on the cucumber plant, cultivar Lahuba, by spraying with three types of plant extracts, one of which is the extract of fenugreek (*Trigonella*). Foenum root extract, dioica at a concentration of 50 g/L, and nettle extract at a concentration of 50 g/L, wherein the fenugreek extract was superior in the number of fruits/plant compared to the control treatment and also led to an increase in the sex ratio and fruit diameter. The garlic extract was also distinguished by increasing the thickness of the leaf, while the extract of licorice root outperformed. In increasing plant height, a number of leaves and number of fruits compared to the control treatment, while the nettle extract was superior in increasing the number of branches/plant, leaf area, and dry weight, as well as in increasing the total content of chlorophyll and net photosynthesis compared to the control treatment.

Al-Shammari and Omar (2011) observed a field experiment conducted in one of the government nurseries during the agricultural season 2011-2012 to study the effects of spraying with three types of organic fertilization (organic vegetable fertilizer ALGA CIFO 3000, AZOMIN organic animal fertilizer, and spraying with distilled water only (comparison treatment). The results showed the superiority of the hybrid AS1 when fertilized with an animal fertilizer at the rate of plant height. The highest content of chlorophyll in leaves was 54.50%, and the hybrid BF372 fertilized with organic plant fertilizer was superior in the average number of days required for the first flower to open in 50 % of the plants, which reached 40.33 days, and in the greenhouse yield, which recorded 12.89 tons/greens/greenhouse.

## Conclusions

It is concluded from previous studies that organic fertilizers, whether vegetable or animal, and humic fertilizers are superior in increasing the characteristics of vegetative growth and quantitative yield characteristics, as well as the superiority of organic fertilizers in increasing the sex ratio of cucumber plants.

## Recommendations

It is recommended to add organic fertilizers from all sources to the cucumber plant in order to obtain the highest rate of all vegetative growth characteristics, the highest total yield, and the highest nutritional value.

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