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Effect of immature yellow melon seeds in inhibition of growth of cucumber and celery plants

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ABSTRACT

Cucumis sativus is a vegetable crop belonging to the Cucurbitaceae family and originates from temperate, subtropical sub-humid areas. This study was aimed to evaluate the effect of water extract of immature melon seeds in inhibition of seed germination of cucumber and celery plant. This study was conducted in the laboratory of the Department of Science, Faculty of Basic Education, Diyala University, Iraq. The seeds of these vegetables were selected and diagnosed in the herbaceous plant in the Department of Life Sciences. During the washing of immature seeds that were isolated from other melon residues. The results showed that the concentration of (0.1, 0.3, 0.7) and compared to the comparison models had the same effect in germination in seeds for cucumber. For celery plant only (0.7) gave the highest percentage of inhibition of celery seed plant and reached 20% Which was 80%. As for the length of the root only, the concentration of (0.7) gave the lowest rate for the cucumber and celery which amounted to 2.132 and 0.866 respectively, compared to the comparison treatment amounted to 5.932 and 1.399 respectively, in addition to other transactions. In addition, the concentration (0.7) gave the lowest length of the cucumber and celery time of 8.799 and 2.566 respectively, compared with the comparison treatment given to both plants 13.232 and 3.066 respectively, in addition to other treatments. As for the soft and dry weight of the cucumber plant, the concentration was given (0.7) the highest rate of soft weight at 0.2920, while the concentration (0.1, 0.3) gave 0.2057 and 0.0599 respectively, while dry weight gave the concentration (0.7).

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INTRODUCTION

Cucumis sativus is a vegetable crop belonging to the Cucurbitaceae family and originates from temperate, subtropical sub-humid areas (Abou-Hussein *et al.,* 1975). A number of researchers used plant extracts and growth regulators to influence cucumber seeds (1995) found that the use of LAA at a concentration of 50 and 100 mg L which led to an increase in the number of female flowers and reduced the number of male flowers of the cucumber plant. Female flowers also appeared on the lower nodes and increased with increased concentration. Study of the use of garlic extract was mentioned (Helmy, 1992; Al-Delaimy *et al.,* 1970). The coefficient of garlic extract caused an increase in the proportion of female flowers and reduced the proportion of nationality compared to pumpkin plant as well as a study of Janabi, (1984). It was mentioned that the cucumber plant and its seeds contain compounds of terpenes, growers, and emulsifiers as well as the study of Al-Arousi and Emad El-Din, (2007) and Al-Juboory *et al.,* (1994). The effect of sprinkling plant extracts, the other species used in

this experiment is the celery plant Aplum gavolens, which belongs to the Umbelliferae family, is a long-standing or long-standing herbaceous plant. This family is characterized by tentacles and carrots (Arsueli, 2004; Arguello et al. 1986). The celery crop of winter crops, as well as its cultivation throughout the year, is an important crop in temperate regions cultivated mainly in Iraq for metals and antioxidants with high medical value (Yaser *et al.,* 2004) and Abi et al. and growth regulators on the two varieties of cucumber and cucumber was due to the increase of female flowers, flowers on the rest of the experiment. In the present experiment, the melon fruit extract was treated with cucumber and celery. It is the choice of plants that have the ability to grow, flower and hold fruits in hot and dry conditions. Therefore, the fruits of the cucumber (Abu Dahi *et al.,* 1988; Jumaily, 2009). The celery plant is one of the tentacles, which includes shabent, parsley and carrots. It is an important plant rich in calcium, sodium, and potassium (Sarhan, 2000; Hussein Majid 2009).

MATERIALS AND METHODS

The experiment was carried out in the laboratories of the Department of Science, Faculty of Basic Education, 2012_2013 Vegetable seeds (celery and cucumber) were selected and applied in this experiment. These seeds were identified in the herbaceous plant of the Department of Science on the basis of taxonomic keys. The water extract was prepared from the immature yellow melon seeds. The extract was prepared by washing the seeds and then isolated from the other watermelon residues with distilled water and left to dry at 25°C and then submerged in distilled water for 3 days. The seed weight (70 g) One. Then, use an electric mixer to obtain the solution. The solution was then filtered by filter paper, where the total concentration was 0.7, and then different concentrations of the solution (0.3 0.1 0.1) were obtained by treating it with distilled water. A number of Petri dishes were introduced depending on the number of treatments and the number of seed species to be grown in. Seed paper was used for seed germination (3) for each concentration (distilled water 0.1 _ 0.3 _ 0.7) and for celery seeds. The solutions were added to it for 12 days on a daily basis and notes were recorded for the changes that appeared in each dish. As for the measurements, they were done in standard intervals and every three days. After recording all the measurements and over the duration of the experiment, the soft weight of the plants resulting from the experiment and each concentration was also measured and stabilized by using the sensitive balance. The dry weight was measured by placing the resulting plants in the oven for 24 hours at a temperature of 85 m by weight of the plants resulting from the experiment. The weight of the fairy grape was empty, and the dry weight was extracted by equation next

(Dry weight = dry weight with dry matter _ weight is empty and empty).

DISCUSSION

In Table 1, the percentage of germination of the cucumber plant indicates that the first period was not affected by the concentration of the solutions treated by the seeds. In the second period, we observed the inhibiting of germination by concentrations (0.3, 0.7). This inhibition was found to be compared to be treated with distilled water. The rate of germination rate in concentration was 0.3, 0.7 to 6.66. In distilled water%. As for the second and fourth period, the concentration (0.1) was observed to inhibit the germination rate in addition to the concentration (0.7, 0.3). In the last period, treatment (4.3) was the most effective in inhibiting the rate of germination (these results correspond to those of Sami and others in 2004.) and also coincided with the study (Zuhairi, 2016). As for the celery plant**:** We noticed that there was no effect of the extract in the first and second periods. In the third period, it was observed that the percentage of celery germination at the concentration solution (0.3) was lower than that of distilled water, concentration (0.1) and distilled water. At the concentration of (0.7) less than in (0.3), the percentage of germination decreased by 10% than in the concentration of (0.3). In the latter period, the percentage of celery germination at the solution of concentration (0.3) less than it is distilled water and concentration (0.1). The growth rate was 20% lower than that of distilled water and concentration (0.1). At the concentration of (0.7), it was less than in the concentration of 0.3%. The germination rate decreased by 20%. As for table (2), including the length of the root of the cucumber plant, we noticed that the first period after "three days" did not grow the root in all the treatments, the second we noticed that the highest growth rate of the root at the extract with concentration (0.3) and then distilled water and concentration (0.7) and the concentration (0.1). In the third period, we noticed that the highest percentage of the root plant is at the concentration of (0.3) where it reached (1.8) mm and then the concentration (0.1). As for the last period, we have noticed very clearly through the high growth rate of the root in transactions with concentration (0.3). As for the celery plant**:** We noticed that the first period "after three days" and the second "after six days" increased the growth of the root in all the transactions. As for the third period, we noticed that the germination rate of growth of the root in the concentrated extract (0.3) and after distilled water and (0.1) and then (0.7).

Table 1: The effect of melon plant extract on the germination ratio of cucumber seeds

Txns.	after 3 days	After 6 days	the avg.	After 9 days	The avg.	After 12 days	The avg.	Total txns.
Distilled water	0-1	%10 -1	%10	%100_1	%100	%100_1	%100	210
	0-2	%10_2		%100_2		%100_2		
	0-3	%10_3		%100_3		%100_3		
Concentration of extract 0.1	0_1	%10_1	%10	%10_1	%10	%100_1	%100	120
	0_2	%10_2		%10_2		%100_2		
	0_3	%10_3		%10_3		%100_3		
Concentration of extract 0.3	0_1	%10_1	%6.66	%10_1	%6.66	%10_1	%6.66	98.19
	0_2	%10_2		%10_2		%10_2		
	0_3	%0_3		%0_3		%0_3		
Concentration of extract 0.7	0-1	%10_1	%6.66	%10_1	%6.66	%10_1	%6.66	98.19
	0_2	%10_2		%10_2		%10_2		
	0_3	0_3		%0_3		%0_3		

The average after 3 days = 0

Table 2: The effect of concentrations of the yellow melon extract on the germination ratio of celery seeds Apium graveolens

Txns.	after 3 days	After 6 days	After 9 days	The avg.	After 12 days	The avg.	Total txns.
Distilled water	0_1	0 _1	%30_1	%30	%50_1	%50	80
	0_2	0 _2	%30_2		%50_2		
	0_3	0 _3	%30_3		%50_3		
Concentration of extract 0.1	0_1	%10_1	%30_1	%30	%50_1	%50	80
	0_2	%10_2	%30_2		%50_2		
	0_3	%10_3	%30_3		%50_3		
Concentration of extract 0.3	0_1	%10_1	%20_1	%20	%30_1	%30	50
	0_2	%10_2	%20_2		%30_2		
	0_3	0_3	%20_3		%30_3		
Concentration of extract 0.7	0-1	%10_1	%10_1	%10	%10_1	% 10	20
	0_2	%10_2	%10_2		%10_2		
	0_3	0_3	%10_3		%10_3		

The average after 3 days = 0; The average after 6 days = 0

Table 3: The length of the root of the cucumber plant is measured in mm Cucumis sativus

Txns.	after 3 days	After 6 days	The avg	After 9 days	The avg.	After 12 days	The avg.	Total txns.
Distilled water	0_1	0.6 _1	0.433	%1.8_1	%1.866	%3.2_1	%3.633	5.932
	0_2	0 .5_2		%2_2		%4.2_2		
	0_3	0.2 _3		%1.8_3		%3.5_3		
Concentration of extract 0.1	0_1	%0.7_1	0.366	%1.8_1	%1.6	%3.2_1	%3.466	5.432
	0_2	%0.4_2		%1.6_2		%4_2		
	0_3	0_3%		%1.4_3		%3.2_3		
Concentration of extract 0.3	0_1	%0.9_1	0.633	%2.6_1	%1.8	%4_1	%3.833	6.266
	0_2	%1_2		%2.8_2		%4_2		
	0_3	%0_3		%0_3		%3.5_3		
Concentration of extract 0.7	0-1	%0.4_1	0.433	%0.8_1	%0.533	%1.2_1	% 1.66	2.132
	0_2	%0.9_2		%0.8_2		%1.1_2		
	0_3	%0_3		%0_3		%1.2_3		

The average after 3 days = 0

In the last period, we have noticed clearly the growth rate of the root in transactions with concentration. As for table (3), including the length of the rosette of cucumber, we noticed that the first period "after three days" did not grow the feather in all transactions. In the second period, noticed that for the growth of the rouche at the extract with concentration (0.3) and after (0.1) and then distilled water and then comes the lowest rate of growth of the brush with a concentration of (0.7).

Table 4: Length of the root of celery plant Apium graveolens

Txns.	after 3 days	After 6 days	After 9 days	The avg.	After 12 days	The avg.	Total txns.
Distilled water	0_1	0. _1	% 0.5_1	%0.566	%0.7_1	%0.833	0.399
	0_2	0 _2	%0.7_2		%0.1_2		
	0_3	0. _3	%0.5_3		%0.8_3		
Concentration of extract 0.1	0_1	0_1	%0.4_1	% 0.5	%0.7_1	%0.766	1.266
	0_2	0_2	%0.6_2		%0.9_2		
	0_3	0_3	%0.5_3		%0.7_3		
Concentration of extract 0.3	0_1	0_1	%0.8_1	%0.833	%1_1	%1.2	2.033
	0_2	0_2	%0.8_2		%1.1_2		
	0_3	0_3	%0.9_3		%1.2_3		
Concentration of extract 0.7	0-1	0_1	%0.1_1	%0.133	%0.6_1	% 0.733	0.866
	0_2	0_2	%0.2_2		%0.9_2		
	0_3	0_3	%0.1 _3		%0.7_3		

The average after 3 days = 0; The average after 6 days = 0

Table 5: The length of the plant's cucumber plant Cucumis sativus

Txns.	after 3 days	After 6 days	The avg.	After 9 days	The avg.	After 12 days	The avg.	Total txns.
Distilled water	0_1	%3_1	2.133	%5.1_1	%4.933	%6.5_1	%6.166	13.232
	0_2	%2.5 _2		%4.7_2		%6_2		
	0_3	%1.9 _3		%5_3		%6_3		
Concentration of extract 0.1	0_1	%3.1_1	3.066	%5 _1	%4.533	%6.1_1	%6.066	13.665
	0_2	%3.1_2		%4 2		%6_2		
	0_3	%3_3		% 4.6 _3		%6.1_3		
Concentration of extract 0.3	0_1	%4.9_1	3.266	%7_1	%6.066	%10_1	% 9	18.332
	0_2	%2.9_2		%6 _2		%7.5_2		
	0_3	%2_3		%5.2_3		%9.5_3		
Concentration of extract 0.7	0-1	%2.2_1	1.7	%3.6_1	%2.766	%5.5_1	%4.333	8.799
	0_2	%1.6_2		%2.1_2		%3.5_2		
	0_3	%1.3_3		%2.6_3		%4_3		

The average after 3 days = 0

Table 6: The length of the rhizome of celery plant Apium graveolens

Txns.	after 3 days	After 6 days	The avg.	After 9 days	The avg.	After 12 days	The avg.	Total txns.
Concentration of extract 0.1	0_1	0_1	0	%0.8_1	%1	%1.5_1	%2.066	3.066
	0_2	0_2		%1.2_2		%2.6_2		
	0_3	0 _3		%0.9_3		%2.1_3		
Concentration of extract 0.3	0_1	%0.7_1	0.366	%0.9_1	%0.9	%1.5_1	%2	2.9
	0_2	%0.4_2		%1.1_2		%2.5_2		
	0_3	0_3		%0.7_3		%2_3		
Concentration of extract 0.7	0_1	0_1	0	%1.9_1	%1.1.766	%3.5_1	%3	4.766
	0_2	0_2		%1.9_2		%3_2		
	0_3	0_3		%1.5 3		%2.5_3		
Concentration of extract 0.1	0-1	0_1	0	%0.6_1	%0.566	%2.5_1	%2	2.566
	0_2	0_2		%0.6_2		%2_2		
	0_3	0_3		%0.5_3		%1.5_3		

The average after 3 days = 0

As for the third period, we also noticed that the highest percentage of alfalfa seedlings was at (0.3) concentration (6.066) mm followed by concentration (0.1) and then distilled water Followed by the lowest growth rate of the rouice h(0.7). In the recent period, we have noticed very clearly through the high growth rate of the rouche in transactions with concentration (0.3).

Table 7: Effect of melon seeds on the soft weight of cucumber seeds and celery

Transactions	Soft weight	Average of the soft weight	The total rate of weights
Concentration 0.1	0.17799g	0.0599g	0.5576g
Concentration 0.3	0.6173g	0.2057g	
Concentration 0.7	0.8761g	0.2920g	
	Total		0.5576g

Table 8: The soft weight of the celery plant (Apium graveolens)

Transactions	Soft weight	Average of the soft weight	The total rate of weights
Concentration 0.1	0.0157g	0.0052g	0.0161
Concentration 0.3	0.0201g	0.0067g	
Concentration 0.7	0.0127g	0.0042g	

Table 9: The dry weight of the cucumber plant (Cucumis sativus)

Transactions	Soft weight	Average of the soft weight	The total rate of weights
Concentration 0.1	0.00409g	0.00136g	0.00333g
Concentration 0.3	0.00303g	0.00101g	
Concentration 0.7	0.00290g	0.00096g	

Table 10: The dry weight of the celery plant (Apium graveolens)

Transactions	Soft weight	Average of the soft weight	The total rate of weights
Concentration 0.1	0.0030g	0.0010g	0.0045g
Concentration 0.3	0.0017g	0.0005g	
Concentration 0.7	g	0.003g	

As for celery, we noticed that the first period "after three days" and the second period "after six days" did not grow the feather in all transactions**.** In the third period, we noticed that the highest growth rate was 0.3 (1.766) mm followed by distilled water and the concentration (0.1) followed by the lowest growth rate of 0.7% In the last period, we noticed that the highest growth rate of the rouche at concentration (0.3) followed by distilled water and the concentration (0.1) and (0.7**)**. As for table (4), which included soft weight, we noticed that the highest percentage of the soft weight of the option at the abstract with a concentration (0.7) where it reached (90.8761) and the concentration (0.3) and then the lowest proportion of soft weight concentration (0.1). As for the celery (0.3), concentration (0.1), and concentration (0.7). As for table (5) containing dry weight. We noticed that the highest dry weight of the cucumber at the concentration was 0.1 and then concentration 0.3 and the lowest dry weight at 0.7**.** As for the dry weight of the cucumber, we noticed that the highest percentage in the extract with a concentration of (0.7**)**. As for the celery. We noticed that the highest dry weight of celery was 0.1 and 0.3 respectively. The lowest dry weight was 0.7% at 0.003 mm**.** For the cucumber, if it was g0.00096 compared to 0.3 and 0.1, it was 0.00136 and 0.00101. The average weight of the celery plant was the lowest in the concentration (0.7**)**(0.003) compared to (0.3.0.1) when they reached 0.0067 and 0.0052 respectively. The same concentration gave the highest dry weight of celery (0.003) compared with 0.3.0.1, which reached 0.001 and 0.0005 respectively, and this with the Mjaa (Youth 2016).

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