

أعراض نقص العناصر الغذائية

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Introduction:

Nutrient Deficiency Symptoms

In many cases, deficiency may occur because an added nutrient is not in the form the plant can use.

Nutrient deficiency symptoms usually appear on the plant when one or more nutrients are in short supply.

Deficiency symptoms for specific elements are included on the "Key to Nutrient Disorders".

Effect calcium in plant

- ✓ ***affects chlorophyll production, protein synthesis***
- ✓ ***and plant function and structure***
- ✓ ***affects some oxidation-reduction reactions***
- ✓ ***reduces cysteine and methionine content in rice***
- ✓ ***delayed plant development and maturity***
- ✓ ***affects yield if deficiency occurs at vegetative stage***

Mineral requirements in plants

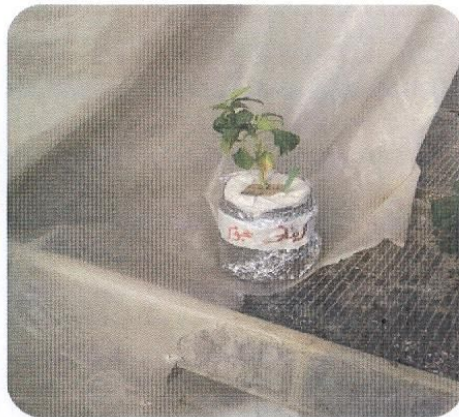
- ✓ *In order to synthesize amino acids, nitrate ions must be taken into the plant from the soil through the root*
- ✓ *Other minerals are also necessary to maintain the life of the plant*

Deficiency Symptoms – ca

- ✓ *Leaves uniformly light green, followed by yellowing and poor spindly growth.*
- ✓ *Uniform chlorosis does not occur*
- ✓ *chlorotic young leaves with necrotic tips*
- ✓ *lower leaves do not show necrosis*
- ✓ *reduced plant height*

✓ *reduced number of tillers and spikelets*

✓ *fewer and shorter panicles*



Purpose

- ✓ **Measuring the effect of the lack of the elements on the plant in this experiment (water culture)to**
- ✓ **seedling measure the effect of the lack of (ca) on pepar**
- ✓ **-Measuring the effect of adding all fertilizers+trace to plant tomatoes and plant pepar (soil culture)**
- ✓ **Measuring the effect of adding k+trace to plant tomato and pepar(soil culture)**

All fertilizer+trace

❖ **13:13:13**

10 gm/leter

❖ **Millimicro 5cm/leter**

• **نضيف 10سم³/قوار/اسبوع**

• **نضيف 5سم³/قوار/اسبوع**

K+trace

❖ إضافة 10 سم3 من ال K_2SO_4 /قوار/اسبوع

❖ إضافة 5 سم3 من ال trace /قوار/اسبوع

Material and method

two experiment:

✓ Water culture

✓ Soil culture

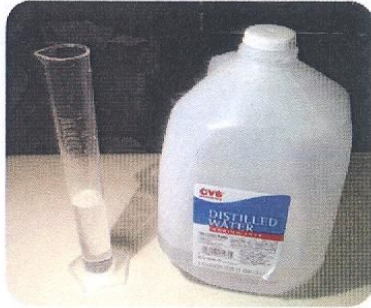
Water culture:

1. Cans



2. Pipline

3. Distilled water



4. Blastec wrab



5. Nutrient solution

6. Meter



7. Diameter

8. Corn



Method

- 1. Put papper seedling in pot**
- 2. Add destil water to half pot**

- 3. Wrapped with blastec around pot**
- 4. Put the cork to cover pot**
- 5. Put a sucker for inflatable air inside the pot**
- 6. Add nutrient solution (-ca) every week**
- 7. Then take measurements every
week(width,length,no.leaf,no.fruit,no.
Flower)**

**Nutrition solution: add nutriuent
solution according to the table**

Table 4. Composition of nutrient solutions

Type of nutrient solution	ml of stock solutions per liter of distilled water									
	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
Complete nutrient	5	2	5	1					1	1
Minus calcium		2	5	1					1	1
Minus magnesium	4		6	1		3			1	1
Minus potassium	5	2			10				1	1
Minus nitrogen		2			10	5		200	1	1
Minus phosphorus	4	2	6						1	1
Minus sulfur	4		6	1			2		1	1
Minus trace element	5	2	5	1					1	
Minus iron	5	5	2	1						1

Soil culture

1) Tomato and pepar Seedlings

2) Nutrient solution+trace element

3) Water

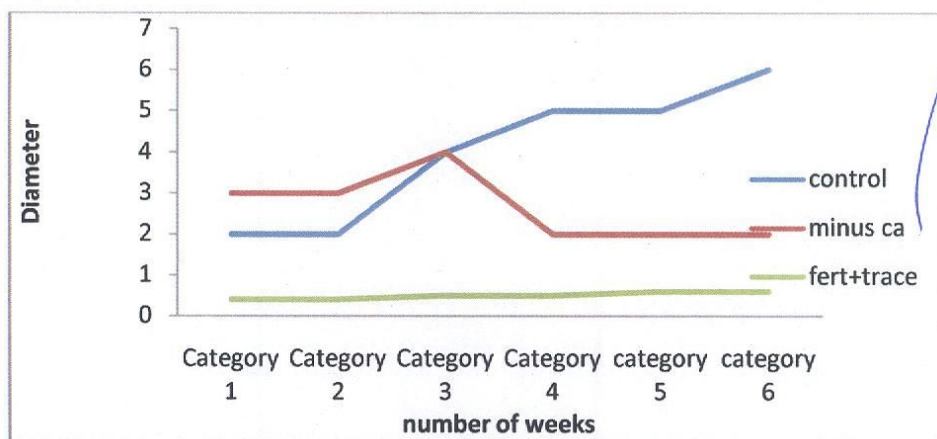
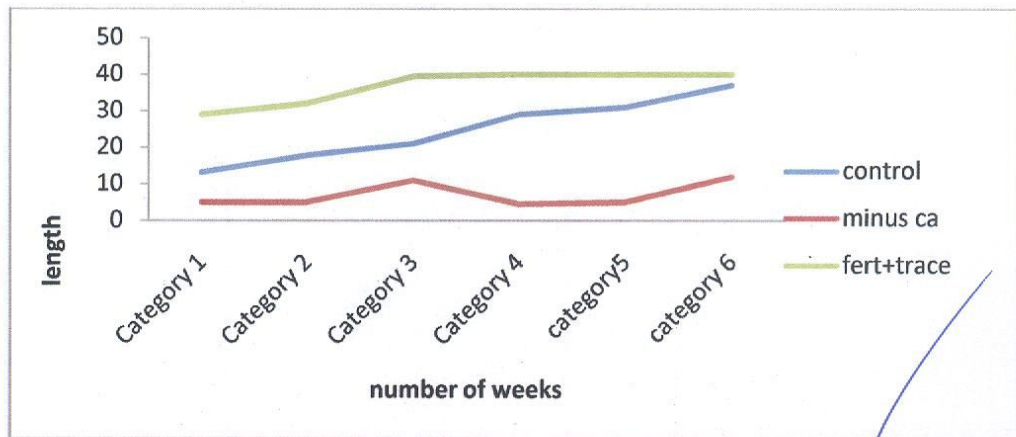
4) Meter

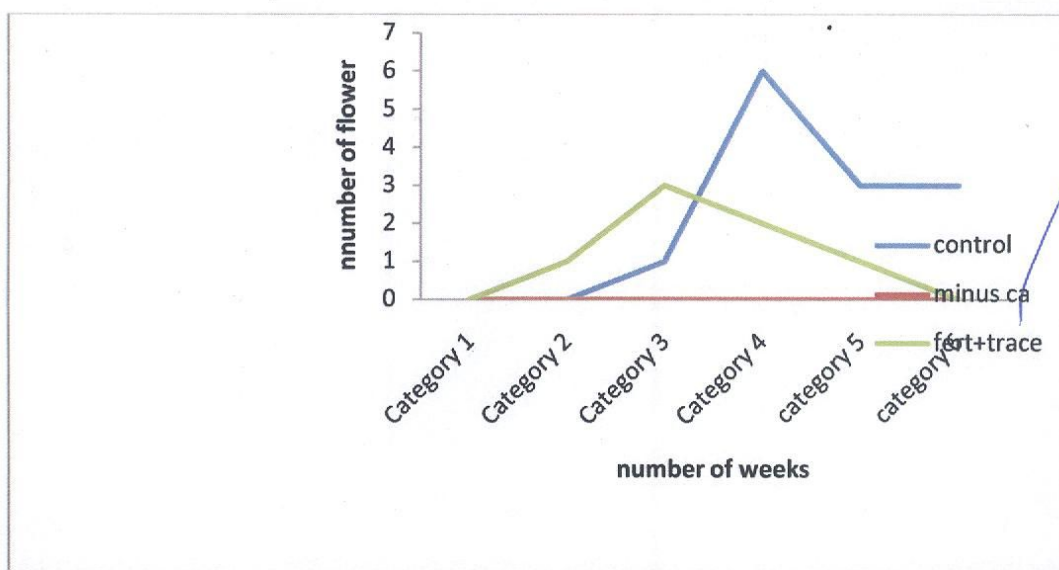
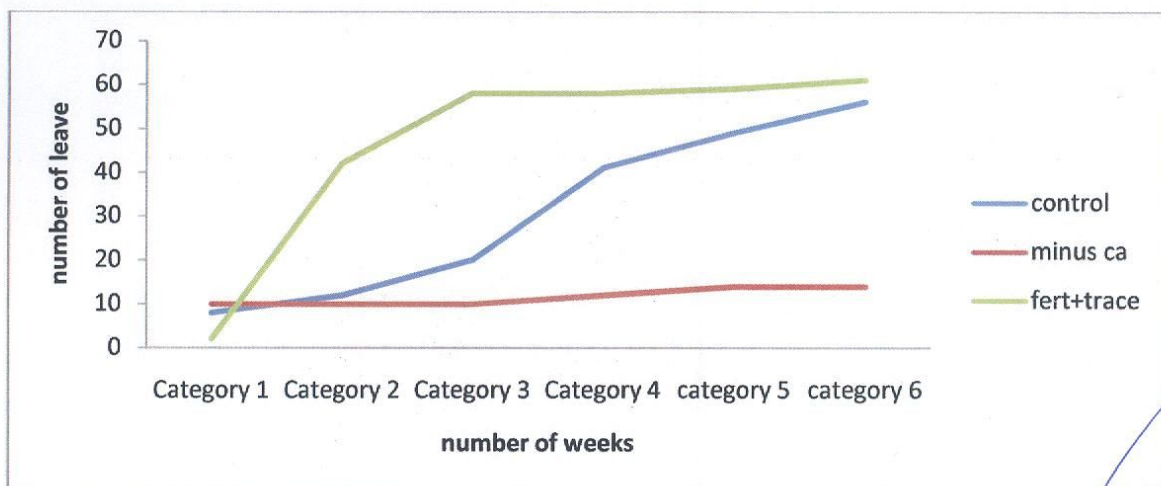
Cultivate tomato and pepar seedlings in the can

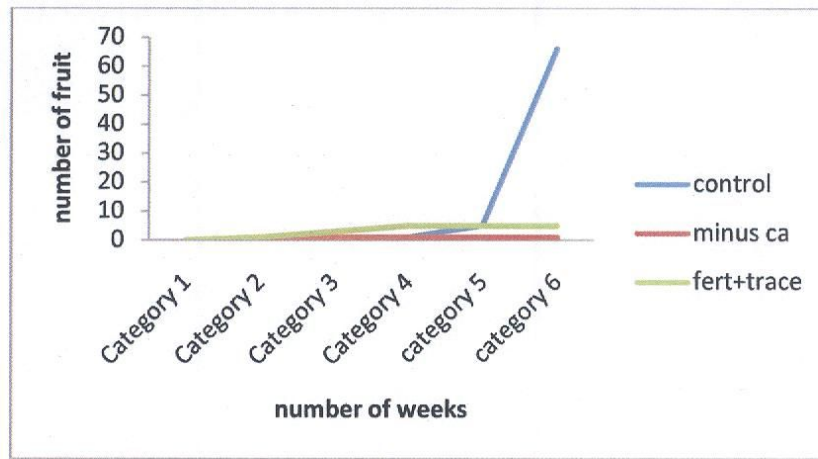
Add all fertilizers

Results

In water soil



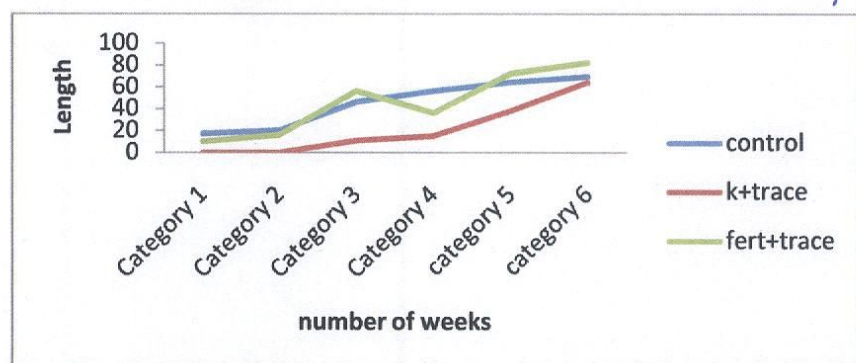


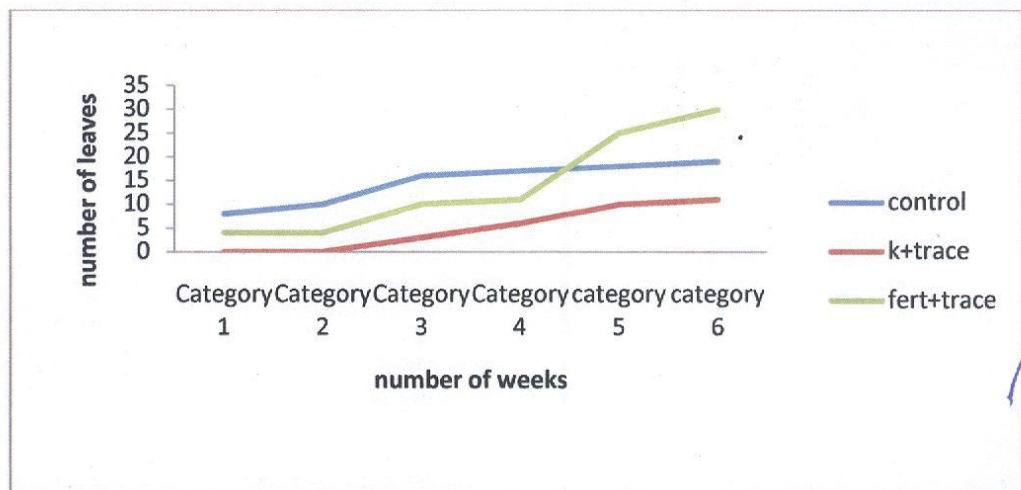
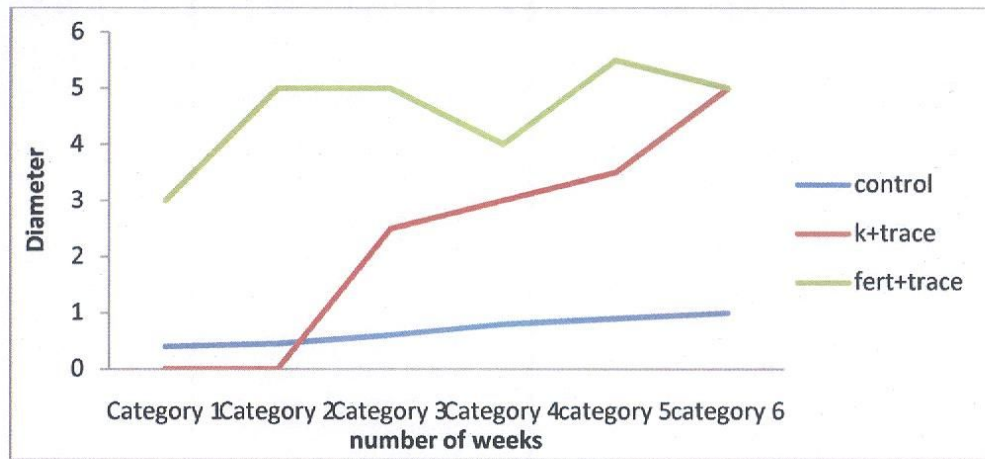


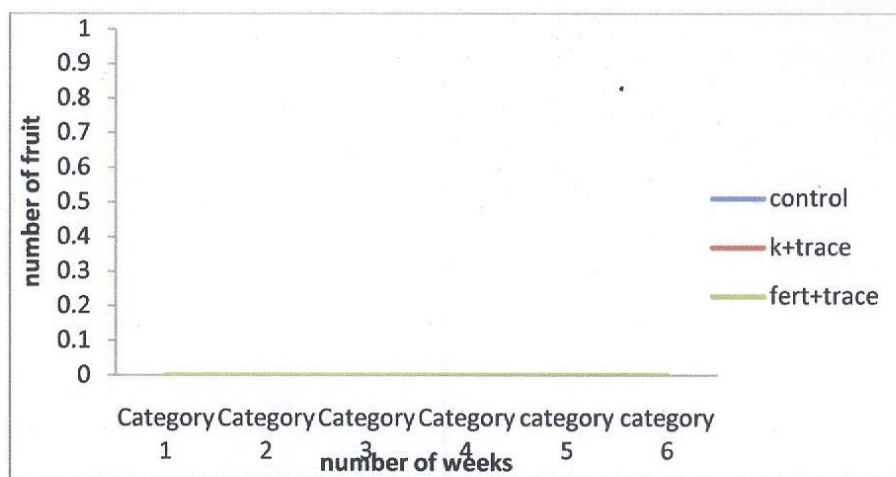
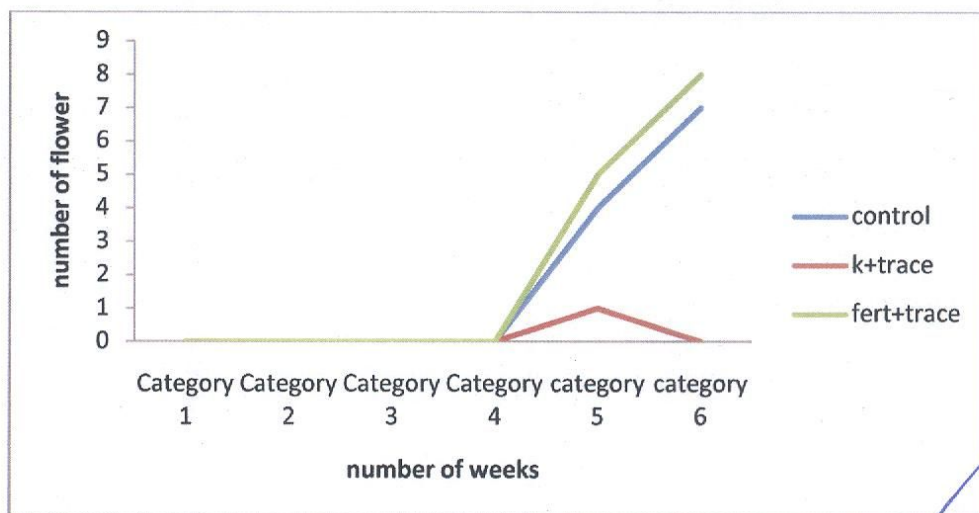
In soil cultur:

Plant tomato

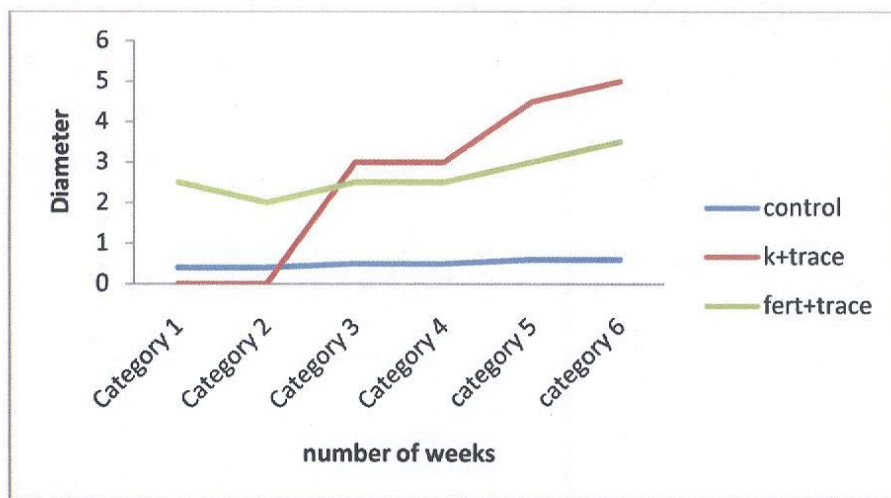
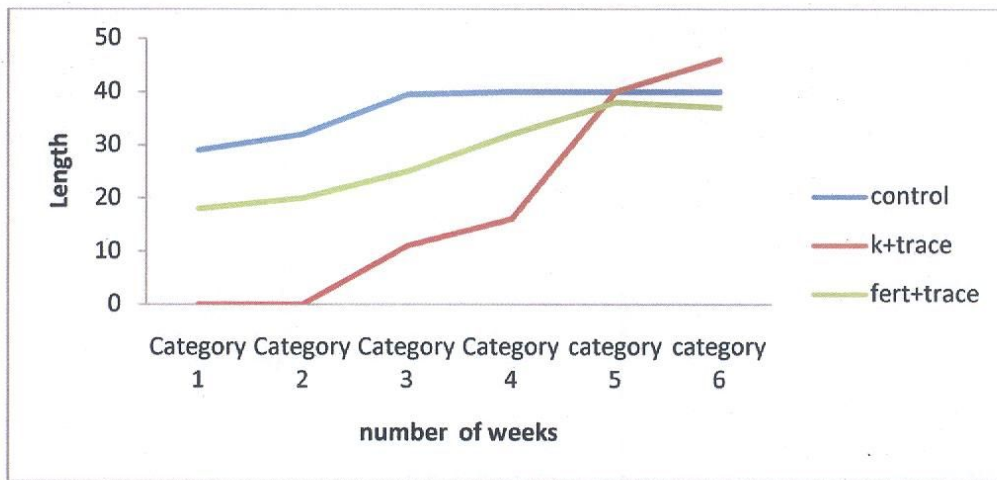
Length

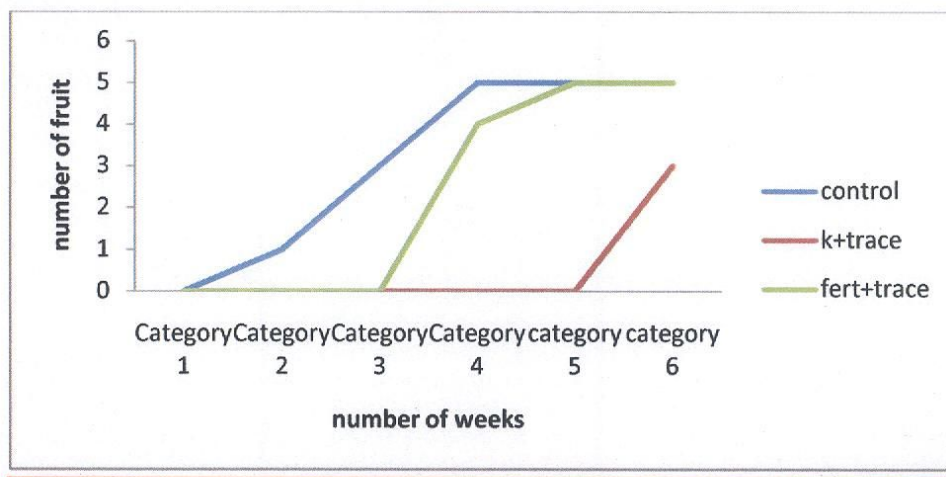
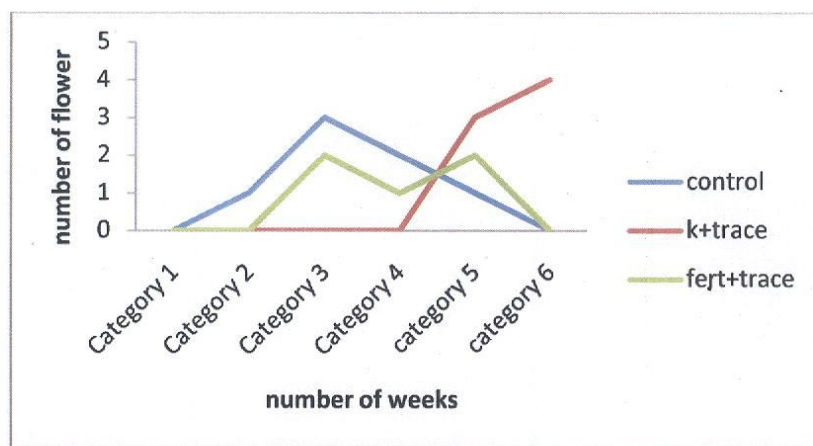
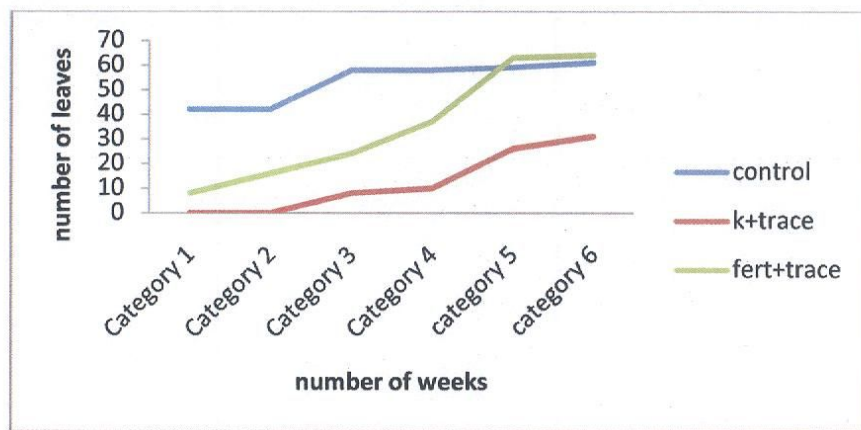






Plant pepar





The Result

Water culture

وزن الجزء العلوي 4.5 غرام

وزن الجذر 8.6 غرام

وزن الثمرة 2.2 غرام

طول الجذر 11.5 سم

طول الساق 19 سم

طول الثمرة 3.5 سم

وضع الجذر والساق في الفرن واخذ الوزن

الجاف لهم بحيث ان القراءة كانت:-

وزن الجذر 1 غرام

ووزن الجزء العلوي 9. غرام

أي أننا نلاحظ أن الجزء السفلي (الجذر) أكبر من

الجزء العلوي (الساق)

في تجربة التربة للفلفل

K+trace

كان وزن الثمار 97 غرام ووزن الجزء العلوي

للفلفل وهو رطب 37 غرام، بينما وزن البندورة

29 غرام، ووزن الجزء العلوي للبندورة وهو

رطب 29 غرام

وبعدها أخذنا الوزن الجاف للفلفل كانت القراءة

7 غرام والبندورة 16 غرام

في التجربة الثانية للفلل والبندورة ايضا

All fert+trace

كان وزن البندورة وهو رطب 156 غرام بحيث

انه كان معظم اوراقه السفلى صفراء اللون

ووزن الفلل وهو رطب 34 غرام ووزن الثمار

49 غرام ، وبعد وضعها في الفرن اخذنا

القراءات وكانت قراءة الفلل وهو جاف 7 غرام

والبندورة وهي جافة 33 غرام