

STUDIES ON SOME VIRUSES  
AFFECTING TOMATO.

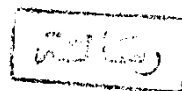
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AFFECTING TOMATO.


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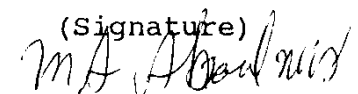
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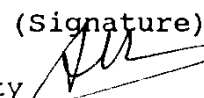
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iii

STUDIES ON SOME VIRUSES

AFFECTING TOMATO.

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**ABSTRACT**

Epidemiological studies in fields of tomato cv. Castle Rock showed that, severe outbreaks of the disease was associated with the number of whiteflies population which was affected by the temperature.

On the other hand tomato plants cv. Turquesa growing under plastic greenhouse showing interveinal yellowing, severe leaf crinkling, mild up-ward leaf curling and stunting symptoms, were used to isolate the virus which cause the above symptoms. The isolate virus can not be

transmitted mechanically in presence of different buffers, but it was transferred mechanically by injecting the infectious sap using a plastic syringe. The isolate virus was also transferred by grafting and by white-flies in a persistent manner. The isolate virus was not transmitted through seeds, and soil.

The isolated virus caused systemic infection on 28 cvs. of tomato and 15 of different hosts.

The virus particles appeared to be geminate paraticles when it was examined by electron microscope.

The syringe transmission of the virus gave us the opportunity to study its stability: its thermal inactivation point was 95°C, dilution end point was  $10^{-7}$ , and longevity in vitro was 8 days.

The movement of the virus within tomato plants appeared as a rapid long distance spread through conducting tissues.

Data also showed that, there is a significant decrease in the sensitivity to infection with the isolate virus as the plant increased in size and age.

The isolate virus was partially purified using 10% polyethylen glycol 8000 MW and 1% NaCl, then it is electrophoresed in 3.5% acrylamide together with 0.6% agarose. The electrophoresis of the partially purified virus showed one band with no corresponding band from the healthy sample.

The UV spectrum of the partially purified virus had a nucleoprotein properties with A max at 258 and A min at 241 nm. The A 260/280 ratio was 1.46. The purified virus yield was 3.09 mg/kg of infected tomato tissue.

The area in the unstained gels which corresponded to the virus band in stained gels was used for antiserum production. The induced antiserum has a dilution end point of 1/4 after a week from the final injection, while it reached 1/16 after two weeks from the final injection, using agar double diffusion test.

According to the above mentioned before (modes of transmission, biological characterization, host range, morphological characters, stability in sap and UV spectrum), we believe that it is one of the geminivirus group, it may be tomato yellow leaf curl virus (TYLCV).

### KEY WORDS.

Tomato yellow leaf curl virus;(TYLCV); Isolation ;  
Transmission ; Host range ; Electron microscope ;Stability ;  
Movement ; Virus purification ; UV Extinction spectra ;  
Antiserum production ; Serological tests .

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**TABLE OF CONTENTS.**

	Page
Title sheet .....	i
Approval sheet .....	ii
Abstract .....	iii
Acknowledgements .....	Vi
List of tables .....	Xii
List of figures .....	Xiii
I- INTRODUCTION .....	1
II- REVIEW OF LITERATURE .....	2
<b>1. Virus transmission</b>	
1.1. Mechanical transmission by sap inoculation ...	4
1.2. Grafting transmission .....	5
1.3. Insect transmission .....	5
1.4. Mechanical transmission by injection .....	6
1.5. Seed transmission .....	8
1.6. Soil transmission .....	8
1.7. Transmission by dodder .....	8
<b>2'. Symptomatology</b>	
2.1. Symptoms on tomato plants .....	9
2.2 Symptoms on other solanaceous plants .....	11
2.3. Symptoms on other plants .....	12
<b>3. Electron microscopy examination .....</b>	<b>13</b>
<b>4. Physical properties .....</b>	<b>15</b>
<b>5. Virus purification .....</b>	<b>16</b>



6. Virus yield .....	22
7. Antiserum production .....	23
<b>III MATERIAL AND METHODS</b>	
1. Natural spread of yellow leaf curl phenomenon on tomato plants and estimation the population of the whitefly ( <u>Bemisia tabaci</u> Gen.) .....	27
2. Isolation of the virus .....	28
2.1. Mechanical transmission .....	28
2.2. Grafting transmission .....	28
2.3. Insect transmission .....	29
3. Virus transmission .....	32
3.1. Mechanical transmission through sap .....	32
3.2. Grafting transmission .....	32
3.3. Whitefly transmission .....	33
A. Virusfree insect stock culture .....	33
B. TYLCV - Whiteflies relationship .....	34
3.3.1. Determination of acquisition feeding period .....	34
3.3.2. Determination of inoculation feeding period .....	34
3.3.3. Determination of the required Latent period .....	35
3.3.4. Determination of the minimum number of insects required for successful transmission .....	35

3.3.5. Virus persistence in the vector.....	35
3.3.6. Investigation of virus transmission through the eggs of <u>B.tabaci</u> Gen. to the progeny .....	36
3.4. Transmission by injection of inoculum using syringe .....	36
3.5. Seed transmission .....	37
3.6. Soil transmission .....	38
 <b>4. Virus characters</b>	
4.1. Host range .....	40
4.2. Electron microscopy examination ....	41
4.3. Stability of the virus <u>in vitro</u>	
4.3.1. Thermal inactivation point ...	41
4.3.2. Dilution end point .....	42
4.3.3. Longevity <u>in vitro</u> .....	42
5. Movement of the virus within tomato plants .	43
6. Relationship between age of tomato plants and susceptibility to the infection with TYLCV .....	45
7. Virus purification	
7.1. Partial purification .....	46
7.2. Further purification .....	47
8. UV Extinction spectra of the partially purified virus .....	48
9. Antiserum production .....	48

10. Serological tests	
10.1. Slide agglutination test .....	49
10.2. Agar double - diffusion test .....	49
11. Titration of the antiserum .....	48

#### IV - RESULTS.

1. Natural spread of yellow leaf curl phenomenon on tomato plants and estimation the population of the whitefly .....	51
2. Population density of <u>B. tabaci</u> Gen and its relation to leaf curl symptoms .....	52
3. Virus transmission	
3.1. Mechanical transmission through sap.	60
3.2. Grafting transmission .....	60
3.3. Insect transmission .....	60
3.4. Transmission by injection of the inoculum using syringe .....	65
3.5. Seed transmission .....	65
3.6. Soil transmission .....	67
4. Virus characters	
4.1. Host range	
4.1.1. Symptoms on <u>Lycopersicon</u> <u>esculentum</u> Mill .....	68
4.1.2. Symptoms on other plants .....	68
4.2. Electron microscopy examination ....	72

4.3. Stability of the virus .....	72
5. Movement of the virus within tomato plants..	79
6. Relationship between age of tomato plants and susceptibility to the infection with the TYLCV .....	81
7. Virus purification .....	83
8. UV Extinction spectra of partially purified virus .....	83
9. Antiserum production and serological tests..	83
10. Antiserum titer .....	85
V . DISCUSSION .....	86
Vi . SUMMARY .....	98
VII. REFERENCES .....	106
VIII. ARABIC SUMMARY .....	

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1- Population density of <u>B. tabaci</u> Gen. and its relation to leaf curl symptoms during the winter season .....	53
2- Population density of <u>B. tabaci</u> Gen. and its relation to leaf curl symptoms during the summer season .....	55
3- Population density of <u>B. tabaci</u> Gen. and its relation to leaf curl symptoms during the autumn season .....	57
4- Transmission of TYLCV by <u>B. tabaci</u> Gen. ....	64
5- Reaction of some host plants to TYLCV .....	73
6- Stability of TYLCV in the sap .....	78
7- The relationship between age of some tomato cultivars and susceptibility to infection with TYLCV .....	82

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
1. Tomato plants (cv. Turquesa) naturally infected with TYLCV .....	31
2. Transmission of TYLCV mechanically by injection with syringe .....	39
3. Diagram showing the classification of the examined tomato plants .....	44
4. Population density of <u>B. tabaci</u> Gen. and its relation to leaf curl symptoms during the winter season .....	54
5. Population density of <u>B. tabaci</u> Gen. and its relation to leaf curl symptoms during the summer season .....	56
6. Population density of <u>B. tabaci</u> Gen. and its relation to leaf curl symptoms during the autumn season .....	58
7. Population density of adults whiteflies and its relation to temperature .....	59
8. Tomato plants inoculated by grafting .....	61
9. Tomato plants inoculated by syringe method .....	66
10. Infected tomato plants with TYLCV .....	70
11. Symptoms of TYLCV on some hosts .....	76
12. Electron micrograph of concentrated preparation of TYLCV particles clarified from infected tomato plants .....	77
13. Diagram showing the spread of TYLCV through tomato seedling .....	80

<u>Figure</u>	<u>Page</u>
14. Ultraviolet absorbance spectrum, of partially purified TYLCV .....	84