

سامية محمد مصطفى



شبكة المعلومات الجامعية

# بسم الله الرحمن الرحيم



سامية محمد مصطفى



شبكة المعلومات الجامعية



# شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم





سامية محمد مصطفى



شبكة المعلومات الجامعية

# جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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سامية محمد مصطفى



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# بالرسالة صفحات لم ترد بالأصل



MOLECULAR AND SEROLOGICAL  
STUDIES ON TOMATO SPOTTED WILT  
VIRUS

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MAHA MOHAMMED ALKHAZINDAR

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# Approval Sheet

## Title of the Ph.D. Thesis

### **MOLECULAR AND SEROLOGICAL STUDIES ON TOMATO SPOTTED WILT VIRUS**

Name of the Candidate: ***Maha Mohammed AlKhazindar***

Submitted to  
The Faculty of Science,  
Cairo University

#### **Supervision Committee**

Dr. Hala Mostafa Yousef Habib ..... *Hala Habib*

Professor of Virology,  
Botany Department,  
Faculty of Science,  
Cairo University.

Dr. Elsayed Tarek Abd-El-Salam ..... *Tarek*

Professor of Virology,  
Botany Department,  
Faculty of Science,  
Cairo University.

**Chairman of Botany Department**

..... *Youssef El-Sayed*

Prof. Dr. Youssry El-Sayed Ahmed Saleh

*To My Beloved*

*Son*



*This dissertation has not been  
previously submitted for a degree  
at this or any other University*

MAHA MOHAMMED ALKHAZINDAR

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## LIST of ABBREVIATIONS

aa	Amino acid
anti-N-serum	Nucleoprotein antiserum
AP	Alkaline phosphatase
APBI	Amersham Pharmacia Biotech Instruction
ATP	Adenine tri phosphate
BCIP	5-bromo -4- chloro-3-indoyl phosphate
bp	Base pair
Bis	N,N-methylene bis acrylamide
BSA	Bovine serum albumin
CB	Crude preparation from bacteria expressing N
cDNA	Complementary deoxyribonucleic acid
CFP	Cyan fluorescent protein
CL	Cleared lysate of bacteria expressing the N
CTAB	Cetyl trimethyl ammonium bromide
Da	Dalton
DAS-ELISA	Double Antibody Sandwich Enzyme Linked Immunosorbent Assay
°C	Degree centigrade
DEP	Dilution end point
DIBA	Dot Immunobinding Assay
Dig	Digoxigenin
DNA	Deoxyribonucleic acid
dNTPs	Deoxyribonucleotide tri phosphatase
DTT	Dithio threitol
<i>E. coli</i>	<i>Escherichia coli</i>
E1	First elution
E2	Second elution
ECI	Enhanced chemiluminescence
EDTA	Ethylenediamine tetra acetic acid
EM	Electron microscope
EPPO	European plant protection organization
ER	Endoplasmic reticulum
Fth	Flowthrough
g	Gram



<b>G1 and G2</b>	Envelope glycoproteins
<b>GST</b>	Glutathione -S- transferase
<b>His</b>	Histidin
<b>His-6-Fusion</b>	Hexahistidin (6xHis) Fusion
<b>hrs</b>	Hours
<b>IC/RT-LAMP</b>	Immunocapture reverse transcription loop-mediated isothermal amplification
<b>IC/RT-PCR</b>	Immunocapture reverse transcriptase-polymerase chain reaction
<b>IgG</b>	Immunoglobulin G
<b>IGR</b>	Intergenic region
<b>Indirect ELISA</b>	Indirect Enzyme-Linked Immunosorbent Assay
<b>kb</b>	Kilo base
<b>kDa</b>	Kilo Dalton
<b>L</b>	Large Protein of TSWV, for RdRp Function
<b>L RNA</b>	Long RNA
<b>LB</b>	Luria Bertani
<b>LIV</b>	Longevity in vitro
<b>M</b>	Mole
<b>M RNA</b>	Medium RNA
<b>ml</b>	Millilitre
<b>mRNA</b>	Messenger RNA
<b>MW</b>	Molecular weight
<b>µg</b>	Micro gram
<b>µM</b>	Micro mole
<b>N</b>	Nucleoprotein
<b>NBT</b>	Nitro blue tetrazolium
<b>NCM-ELISA</b>	Nitro cellulose membrane Enzyme liked immunosorbent assay
<b>ng</b>	Nanogram
<b>Ni-NTA</b>	Nickel-Nitrilotriacetic acid
<b>nmol</b>	Nanomol ( $10^{-9}$ mol)
<b>NSm</b>	Non structural medium
<b>NSs</b>	Nonstructural protein small
<b>nt</b>	Nucleotide
<b>O.D</b>	Optical density
<b>ORF</b>	Open reading frame
<b>PBS</b>	Phosphate buffer saline

<b>PBS-Tween</b>	Phosphate buffer saline tween
<b>PCR</b>	Polymerase chain reaction
<b>pmol</b>	Pico mole ( $10^{-12}$ mol)
<b>PMSF</b>	Phenyl-Methylsulfonyl Fluorid
<b>PNGase F</b>	Peptide:N-glycosidase F
<b>PNP</b>	P-nitro phenyl phosphate
<b>PVP</b>	Polyvinylpyrrolidone
<b>RBD</b>	RNA binding domain
<b>RdRp</b>	RNA- dependent-RNA polymerase
<b>rN</b>	Recombinant nucleoprotein
<b>RNA</b>	Ribonucleic acid
<b>RNase</b>	Ribonuclease
<b>RNP</b>	Ribonucleoprotein
<b>rpm</b>	Rotations per minute
<b>rRNA</b>	Ribose ribonucleic acid
<b>RT-PCR</b>	Reverse transcriptase-polymerase chain reaction
<b>S RNA</b>	Small ribonucleic acid
<b>SDS</b>	Sodium dodecyl sulphate
<b>SDS-PAGE</b>	Sodium dodecyl sulphate-polyacrylamide gel electrophoresis
<b>sec</b>	Second
<b>SSC</b>	Standard saline citrate
<b>ssRNA</b>	Single-stranded RNA
<b>T</b>	Thymidin
<b>TAE</b>	Tris acetate EDTA
<b>TBE</b>	Tris borate EDTA
<b>TBIA</b>	Tissue blot immunoassay
<b>TBS</b>	Tris-buffered saline
<b>TBS-T</b>	Tris-buffered saline tween
<b>TE buffer</b>	Tris EDTA buffer
<b>TEMED</b>	N,N,N',N'-Tetramethylethylenediamin
<b>TIP</b>	Thermal inactivation point
<b>TMV</b>	Tobacco mosaic virus
<b>tRNA</b>	Transfer-RNA
<b>TSWV</b>	Tomato spotted wilt virus

<b>TSWV-AS-E</b>	Egyptian produced antiserum against tomato spotted wilt virus
<b>TSWV-IgG-E</b>	Egyptian produced IgG against tomato spotted wilt virus
<b>UV</b>	Ultra violet
<b>vcRNA</b>	Viral complementary sense RNA
<b>vRNA</b>	Viral sense RNA
<b>w/v</b>	Weight per volume
<b>W1</b>	Wash 1
<b>W2</b>	Wash 2
<b>YFP</b>	Yellow fluorescent protein



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