شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار

في درجة حرارة من ١٥-٢٥ مئوية ورطوبة نسبية من ٢٠-٤٠%

To be Kept away from Dust in Dry Cool place of 15-25- c and relative humidity 20-40%

بعض الوثائق الاصلية تالفة

بالرسالة صفحات لم ترد بالاصل

Approval Sheet for Submission

Title of the Master thesis is **Comparative studies on carrot virus Y affecting umberlliferae plants in Egypt**

Name of the Candidate: **Demiana Badry Helmy Hanna**

This thesis has been approved for submission by the supervisors:

1- Prof. Dr. Barsoum Nashed Barsoum Signature _____

2- Dr. Mervat El-Sayed Mohamed Signature _____

3- Dr. Ahmed Mohmed Soliman Signature _____

Prof. Dr. Mohamed Mohamed Shokry

Chairman of Chemistry Department

Faculty of Science, Cairo University

ABSTRACT

Name: Demiana Badry Helmy Hanna

Title of the thesis: Comparative studies on carrot virus Y affecting Umberlliferae plants in Egypt.

Degree: Master of Science Thesis, Chemistry Department, Faculty of Science – Cairo University, 2010.

Carrot virus Y (CarVY) is a newly described *potyvirus* that causes a foliar and root disease in carrots in Egypt and several countries which seriously diminishes yield and quality. CarVY was isolated from naturally infected carrot plants showing symptoms suspected to be caused by viral infection. The isolated virus was biologically purified from single local lesion which is formed on *Chenopodium quinoa* plant. The isolated virus was able to infect four indicator plant species (*Chenopodium quinoa*, *Chenopodium amaranticolor*, *Nicotiana tabacum*, *Nicotiana glutinosa*). The virus was transmitted to the indicator plants by mechanical transmission. Negative staining technique using electron microscope revealed that CarVY had filamentous flexuous shape typical of *potyviruses*. Identification of the virus using electron microscope revealed the existence of several cytopathological changes in the infected carrot plant cells. Serological methods such as double antibody sandwich–enzyme linked immunosorbent assay (DAS-ELISA) gave positive results with CarVY- infected plants in Egypt using specific antibody for CarVY. Chemical analyses were done on both of healthy and infected carrot roots to determine the effects of CarVY on the nutrient content of carrot roots. CarVY increased the amount of dry weight and decreased the amount of moisture, total ash, total carbohydrates, total fibers, vitamin C, β-carotene, vitamin A and the minerals of K, Mg, Na, P and Ca in infected carrot roots as compared with the healthy carrot roots.

Molecular methods such as reverse transcription-polymerase chain reaction (RT-PCR) was used to amplify a 335 bp cDNA fragment from infected plant using degenerate oligonucleotide primer specific for potyviruses group. The amplified cDNA was cloned, sequenced and aligned with other CarVY isolates in GenBank. Partial nucleotide sequence analysis of the 335 bp amplified (GenBank Accession No. GQ148776) from the Egyptian isolate of CarVY coat protein gene exhibited a homology with CarVY isolates from Australia. The highest nucleotide identity was 84% with CarVY Australian isolate with GenBank Accession No. AF203537.

Key words: **Carrot, *Carrot virus Y* (CarVY), Isolation, Mode of transmission, Cytopathological changes, DAS-ELISA, RT-PCR, Cloning, Sequencing.**

Supervisors:

1- Prof. Dr. Barsoum Nashed Barsoum Signature _____

2- Dr. Mervat Mohmed Elsayed Signature _____

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Statement

Beside the work carried out in this thesis, the candidate has attended and successfully passed a final examination of M.Sc. Courses during the academic year 2006-2007 in Biochemistry covering the following topics:

1.	Enzymology	**9.**	Microbiology	**17.**	Spectroscopy
2.	Physiology I	**10.**	Radiobiology	**18.**	Mathematics
4.	Body Fluid	**12.**	Bioinorganic complex	**19.**	Industrial Microbiology
5.	Immunology	**13.**	Biochemistry II	**20.**	Cytology
6.	Immunochemistry	**14.**	Molecular Biology	**21.**	German language
7.	Biological Analysis	**15.**	Proteomics		
8.	Tissue Culture	**16.**	Stereochemistry		

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Demiana Badry Helmy Hanna

Dedication

Firstly, all praise to **ALLAH** for giving me the ability to achieve this work.

I dedicate this work to my family (especially, my mother, my brother and my sister), for whose endless love, encouragements and constant help.