

STUDIES ON VIRAL DISEASES OF STONE-FRUIT

By

AMAL ABO EL-ELLA AHMED



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By

AMAL ABO EL-ELLA AHMED

B.Sc. Agric. Science (Plant Pathology)

Cairo University (1983)

This thesis for M.Sc. degree has been approved by:

Prof. Dr. G.I. Fegla ... *G.I. Fegla*

Prof. of Plant Pathology, Fac. of Agric.,
Alexandria University.

Prof. Dr. A.A. El-Amrety ... *A.A. El-Amrety*

Prof. of Plant Pathology & head of Plant Virus &
Mycoplasma Section, Plant Pathology Reserach
Institute, ARC, Minstry of Agriculture.

Dr. F.M. Abo El-Abbas ... *Abo El-Abbas*

Associate Prof. of Plant Pathology, Fac. of Agric.
Ain Shams University.

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AMAL ABO EL-ELLA AHMED

B.Sc." Plant Pathology" Faculty of Agriculture,
Cairo University (1983).

Under Supervision of:

- 1- **Prof. Dr. M.H. El-Hammady**
Prof. of Plant Pathology, Fac. of Agriculture, Ain Shams University.
- 2- **Prof. Dr. H.M. Mazyed**
Prof. of Plant Pathology & Director of Plant Pathology Research Institute, ARC.
- 3- **Dr. F. M. Abo El-Abbas**
Associate Prof. of Plant Pathology, Fac. of Agriculture, Ain Shams University.

ABSTRACT

Plum pox virus (PPV), detected in some naturally infected apricot, peach and plum trees. Plum pox virus was found to be widely spread in stone fruit trees growing in different governorates. Among 5283 trees, the virus was detected in 1105 (67.5%) apricot, 111 (12.5%) peach and 1250 (60%) plum.

The virus was transmitted mechanically (by using some special treatments), aphids and grafting but not through the infected seeds. The virus reduced apricot yield by about 31% as well as fruit juice volume, humidity content, vitamin A and total carbohydrates. On the contrary, the virus increased the pH and total phenoles of the infected fruits.

The distribution of the virus in the different parts of the infected trees was un even. Infected leaves contained 3 different types of inclusion bodies. Electron microscopy revealed the existence of several cytopathological changes in the infected apricot leaves.

Key words

Plum pox virus (PPV)-Sharka disease-Stone fruits-viruses-ELISA - Inclusion bodies - Cytopathological changes.

1. INTRODUCTION

Apricot, peach and plum are the most important stone fruit trees grown in Egypt. They are cultivated in many governorates specially El-Behera, Beni-Sweif, El-Dakahlia, El-Faiyum, El-Gharbia, El-Giza, El-Kalubia, El-Minofia, North Sinia and El-Sharkia.

The areas devoted to apricot, peach and plum trees in 1982 were about 4600, 2684 and 5299 feddans producing an average of 22.857, 9.157 and 12.150 tons, respectively. The cultivated areas have increased in 1990 to 5900, 23.904 and 7600 feddans producing an average of 29.550, 100.006 and 54.488 tons, respectively.

Stone fruit trees are subjected to infection with several viruses. Among such viruses, plum pox virus is considered to be very important one (Kerlan and Dunez, 1976). In addition to plum trees, the virus attacks apricot, peach and some other related plants (Pemberton, 1980). The plum pox virus is widely spread in many countries, causing severe losses to the infected trees (Dunez and Sutic, 1989).

The first report on the occurrence of this disease in Egypt was appeared in 1987 (Dunez, 1988). No other

Accordingly, the present work aimed to study the following items:

- Disease survey on stone trees at different locations, as well as the spread of infection on different apricot cultivars.
- Isolation and identification of the causal isolate(s).
- Cytopathological changes due to virus infection.
- Virus distribution within the infected trees and its effect on some fruit characters.