STUDIES ON VIRAL DISEASES OF STONE-FRUITS

By

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A thesis submitted in partial fulfillment

of

the requirement for the degree of

Master of Science

in

Agriculture

(Plant Pathology)

Plant Pathology Department

Faculty of Agriculture

Ain Shams University

1994

APPROVAL SHEET

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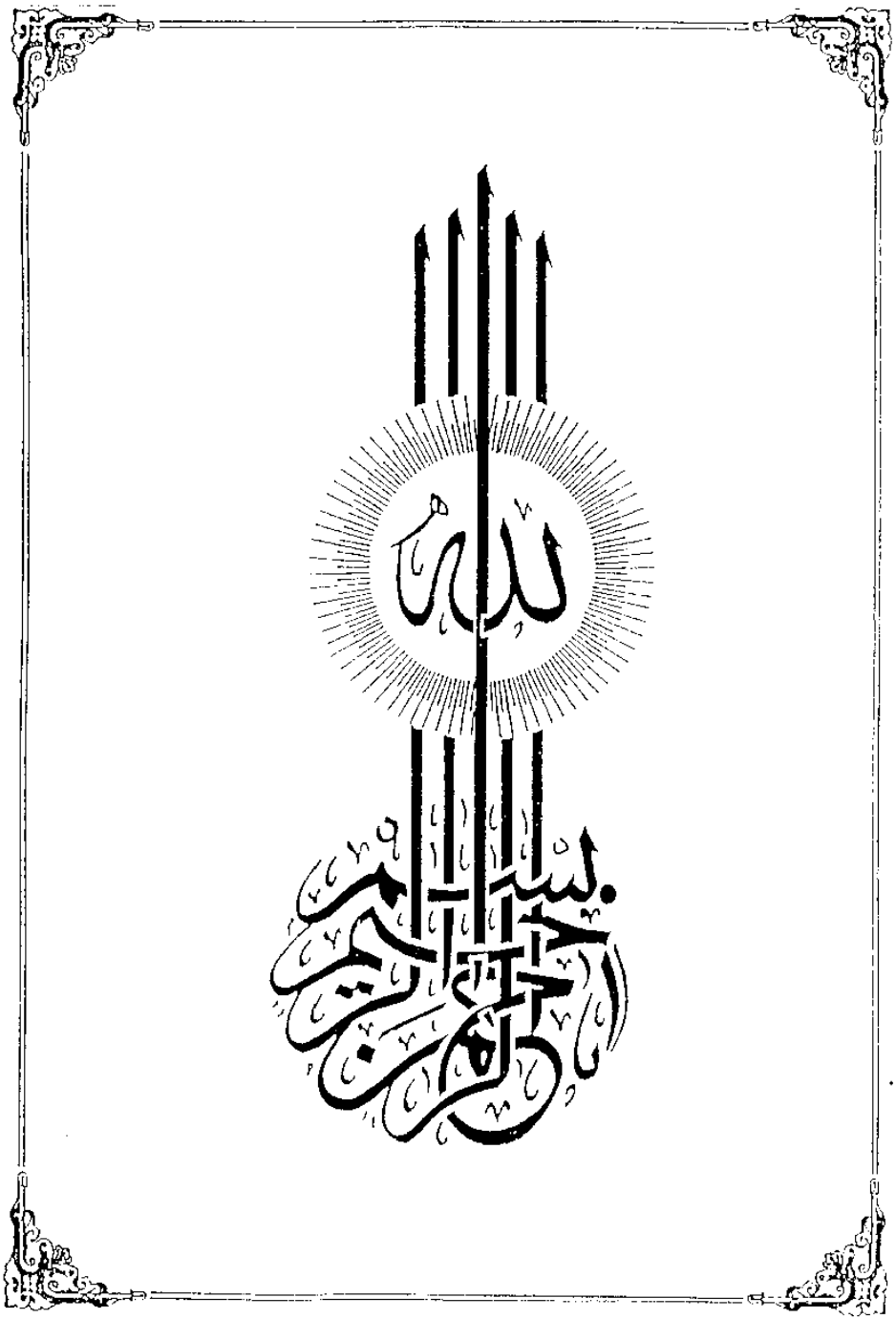
Date of examination: 9 / 8 / 1994.



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ACKNOWLEDGMENTS

The outher wishes to express her deepest gratitude to, Dr.M.H.El-Hammady, Prof. of Plant Pathology, Plant Pathology Dept., Fac. of Agric., Ain Shams Univ., Dr. H.M. Mazyed, Director, Plant Pathology Research Institute, Agriculture Research Center (ARC), Ministy of Agriculture, and Dr. F.M. Abo El-Abbas, Assoc. Prof. of Plant Pathology, Plant Pathology Dept., Fac. of Agric. Ain Shams Univ., for their valuble supervision, suggestion, guidance and encouragement during this study.

Thanks are also due to Dr. S.H.M. El-Deeb, Assoc. Prof. of Plant Pathology, Plant Pathology Dept., Fac. of Agric., Ain Shams Univ., and Dr. M.K. Nakhla, Prof. of Plant Pathology, Plant Virus & Mycoplasma Section, Plant Pathology Research Institute, ARC, Ministry of Agriculture, for their sincere help and progressive criticism.

A lot of thanks are also due to head and staff members of Plant Virus & Mycoplasma Section, Plant Pathology Institute, ARC, Ministry of Agriculture, for their help offered in the present work.

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ABSTRACT

Plum pox virus (PPV), detected in some naturally infected apricot, peach and plum trees. Plum pox virus was found to be widly 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 attaks 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 occurence of this disease in Egypt was appeared in 1987 (Dunez, 1988). No ot

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.