

APPROVAL SHEET

***SEROLOGICAL STUDIES FOR
DIAGNOSIS OF SOME PLANT VIRUSES***

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Date of examination 13 / 10 / 1996



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Abstract

Preparation of virus purified suspension was carried out using Polyethylene glycol (PEG) for tobacco mosaic virus (TMV), ammonium sulphate and ultra centrifugation for tobacco necrosis virus (TNV) and PEG and ultracentrifugation for potato virus X (PVX). Purified virus suspensions obtained indicated a good virus concentrations as determined biologically (infectivity assay) and spectrophotometrically. Electron microscopic examination of the purified suspensions was carried out using negative staining technique with uranyl acetate. Production of specific antisera for TMV, TNV and PVX was preformed using rabbits immunization with total amounts injected; 12.87 mg of TMV, 7.874 mg of TNV and 8.922 mg of PVX. The titer of the prepared antisera was determined using tube precipitin test . The lowest amount of purified virus suspension needed for the production of virus specific antiserum with adequate titer was determined. The suitability , efficiency and sensitivity of different eight serological tests (Indirect-ELISA, indirect-DAS-ELISA, dot-ELISA, rocket immunoelectrophoresis, tube precipitin, Ouchterlony double diffusion, single radial immunodiffusion and immunoelectron microscopy) for assay, detection and diagnosis of the three viruses were

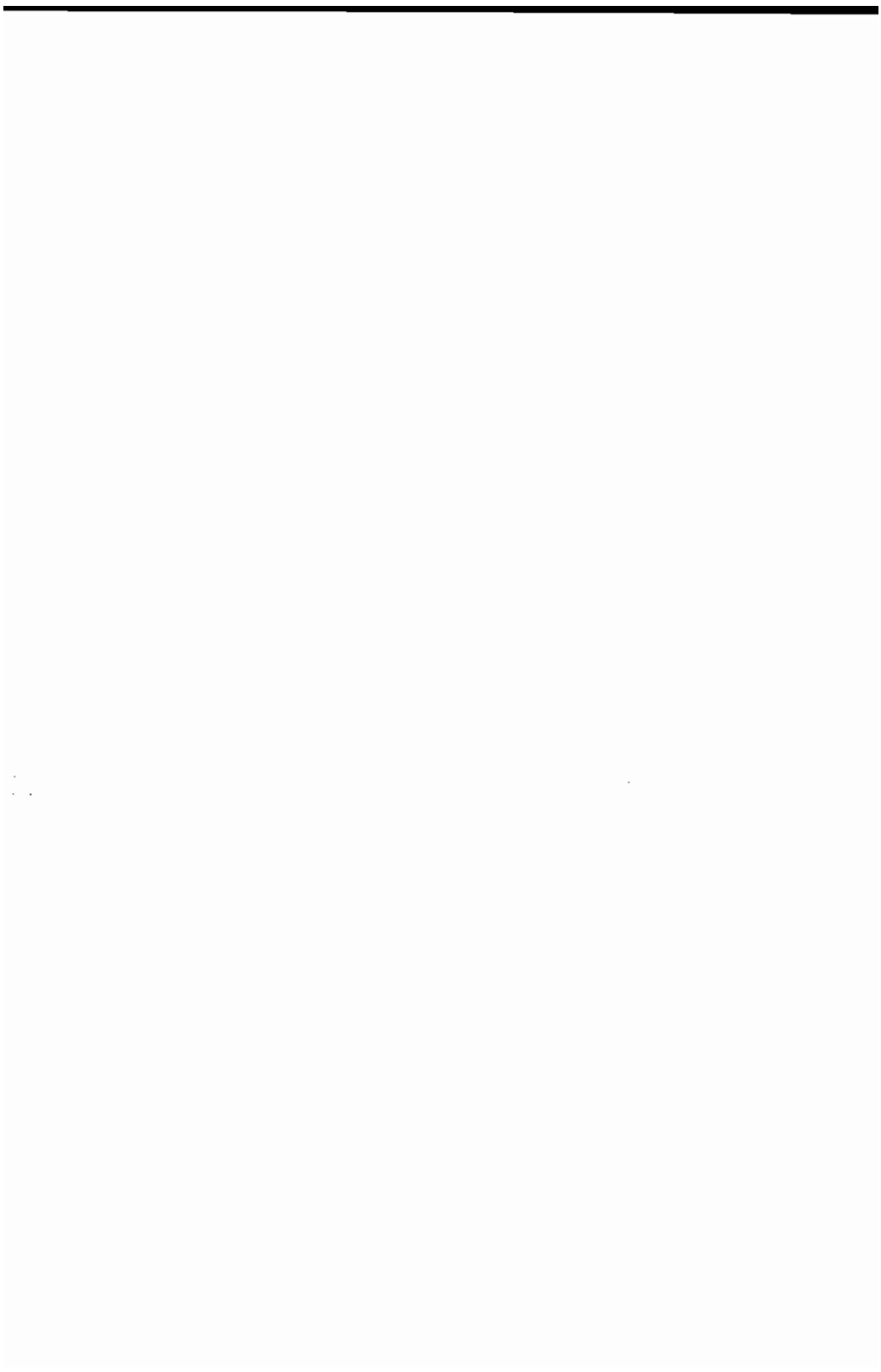
determined. Indirect-ELISA procedures were found to be much better suited for diagnostic work because of its high sensitivity. Immunoelectron microscopy was rapid and very sensitive for virus detection and diagnosis involving two properties (virus morphology and serological specificity). The concentration of TMV, TNV and PVX infected sap was determined using single radial immunodiffusion and rocket immunoelectrophoresis. The present results clearly indicated that both Ouchterlony and radial immunodiffusion were cost-effective but less sensitive compared to the other methods. Tube precipitin test proved to be efficient for the determination of antiserum titer and virus antigen end-point.

Key words: TMV, TNV, PVX, Serology, ELISA, electron microscopy.

ACKNOWLEDGMENT

I am greatly indebted and would like to express deepest gratitude to **Dr. Esmat. K. Allam**, Prof. of Virology Fac. of Agriculture, University of Ain Shams, **Dr. Youssef A. Youssef**, Prof. of Microbiology, Fac. of Science, University of Ain Shams, and **Dr. Kouka Saad Eldeen Abd El-Wahhab** Prof. of Virology Fac. of Medicine, University of Al-Azhar for their faithful supervision, continued advice, constructive criticism and continued encouragement which was of value to complete this work. Thanks to **Dr. Khaled El-Dougdong**, **Dr. Abdelallah M. El-Ahdal**, Ass. Prof. of virology, Department of Microbiology, Fac. of Agric., University of Ain Shams, and **Dr. Hussam A. Ghanem** lecturer of virology Department of Microbiology, Fac. Science University of Ain Shams for their guidance throughout this work. Thanks to all staff members of the Virology Lab. Fac. of Agric. University of Ain Shams and all staff members of Virology Lab Fac. of Medicine, University of Al -Azhar for their assistance and cooperations.

I would like to acknowledge **Dr. Abdelftah M. El-Shershaby**, Dean of Fac. of Science El-Fayoum branch, University of Cairo, **Dr. Mahmoud Hafez** Head of Department of Botany, and all staff members of Department of Botany, Fac. of Science El-Fayoum branch, University of Cairo for their enthusiastic assistance and good spirit of cooperation.



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