B-18: Characterization of papaya viruses in Sri Lanka

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Papaya ringspot virus (PRSV) disease is a major limiting factor for papaya cultivation, especially in the wet and intermediate zones of Sri Lanka. In the past, this disease was documented as papaya mosaic virus (PMV).

Later studies had revealed that papaya virus in Sri Lanka was similar to PRSV. However, sampling of the papaya virus infected area in the country had not been carried out. Proper characterization was, therefore, carried out by collecting representative samples of the infected areas.

Sixty virus isolates representing different infected areas of the country were collected and the following properties tested.
(Virus isolates were maintained *in vivo* in papaya seedlings or as dried leaf samples *in vitro* till they were characterized)

(a) Symptomatology (b) Host range (c) Stability in sap (1) Dilution end point (2) Longevity at room temperature (3) Thermal inactivation point. (d) Serological relationships. Indirect ELISA test using PVY, PRSV-P PRSV-W, PMV and PLDMV antisera. (e)Transmission through seed and pollen.

(a) A wide range of symptoms was observed on infected papaya. They include leaf mottle, severe mosaic and leaf distortion. Streaks and rings with water soaked appearance occur on stems and petioles. Most distinctive symptom was the characteristic ringspot markings on the fruit. Fruit size, quality and yield reduced at later stages of infection.

(b) The virus was easily transmitted through sap to *Carica papaya* and Zucchini. This virus did not infect *Chenopodium ameranticolor, C.quinoa, C.murale, Cucurbita pepo, Cucumis sativus, Petunia hybrida, Gomphorena globosa, Cassia occidentalis, N. glutinosa* and *N. tabacum* when inoculated with sap.

(c) In papaya sap the virus lost infectivity after 10 min at 54-56^{0}C and after 16 h. at room temperature (28-30^{0}C). Dilution end point was about 10^{-3}.

(d) All virus isolates reacted with PVY and PRSV-P antisera. None of the isolates reacted with PRSV-W, PMV and PLDMV antisera.

(e) The virus was not transmitted through dried seed. However virus transmission was observed through gelatinous sacotesta of the seed. The virus was also transmitted through pollen.

Symptoms of papaya virus in Sri Lanka are similar to those of PRSV. The host range differs from that of described viruses of papaya. Dilution end point and thermal inactivation point were identical with those of PRSV and PLDMV. However, longevity deviated from that of PRSV.

The virus isolates were serologically related to PVY and PRSV-P but not to PRSV-W, PMV and PLDMV.
Therefore it can be concluded that papaya virus in Sri Lanka is a strain of PRSV-P.

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