SUMMARY

A virus causing mosaic disease on launaea (L. aspleniiifolia Hook f.), prevalent in North India was isolated, characterized and identified.

The virus is transmitted by mechanical sap inoculation, by two species of aphids viz. Aphis craccivora and Myzus persicae in non-persistent manner and by grafting. However, dodder (C. reflexa) and seeds from LaMV infected plants failed to transmit the virus. The virus is not transmitted by soil from around the roots of infected plants.

Experimental host range studies indicated that the virus has a moderate host range, infecting 26 species of plants distributed in nine families, however 38 species were found to be immune. Local lesions were produced on C. amaranaticolor, C. album, C. murale, C. quinoa, Vicia faba and D. metel. But the C. amaranaticolor was found to be most suitable for assay purpose.

The virus has a thermal inactivation point between 50-55°C, dilution end point between $10^{-4}$ and $10^{-5}$ and longevity in vitro at room temperature $(25±5°C)$ 84 h and at 4°C 156 h.
Launaea mosaic virus (LaMV) attained maximum concentration in *D. metel* leaves 12 days after mechanical inoculation. LaMV was isolated by a procedure involving extraction in 0.2M phosphate buffer pH 6.8 containing 0.1% sodium sulphite and 0.1% EDTA. The extract was clarified by 30 per cent chilled chloroform. The virus was precipitated by 6% PEG and 0.125% NaCl followed by differential centrifugation. Removal of host contaminants was achieved by rate zonal density gradient centrifugation linear sucrose columns.

Purified preparations gave a spectrum typical of nucleoproteins when examined in a UV-spectrophotometer with $A_{\text{max}}$ and $A_{\text{min}}$ at 258 and 240, respectively $A_{260}/A_{280}$ ratio is 1.164, indicating approximately 5.52% nucleic acid (RNA) in the virus particle. SDS-PAGE of viral capsid showed only one type of protein sub-unit having a molecular weight of c. 33,500 dalton.

Purified virus preparation showed flexuous rods c. 730 nm long and 12 nm wide in the electron microscope. Ultrathin sections of LaMV infected *D. metel* leaves showed cytoplasmic cylindrical inclusions comprising pinwheels, scrolls and lamellar aggregates.
An antiserum was raised against LaMV which had a titre of 1:2048 and the antigen titre of 1:512 as determined by tube precipitin test. In immunosorbent electron microscopy, the maximum trapping and decoration was observed with DLDV, PTV, PRSV and TEV. The LaMV showed close serological relationship with DLDV, PTV and PRSV.

On the basis of its characteristics and comparison with serologically related viruses and RT-PCR the virus causing mosaic disease on launaea is identified as a distinct virus of potyvirus group.