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OCCURRENCE OF TOMATO SPOTTED WILT VIRUS ON COWPEA (*VIGNA UNGUICULATA* (*L.*,) *WALP.*), CHILLI (*CAPSICUM ANNUUM L.*) AND BRINJAL (*SOLANUM MELONGENA L.*)

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Following the identification of the causal agent of groundnut bud necrosis as tomato spotted wilt virus (TSWV) (Ghanekar *et al.* 1979) the occurrence of TSWV has been reported on tomato (Prasada Rao *et. al.*, 1980) urd and mungbeans (Amin *et. al.*, 1985) and Peas (Prasada Rao *et. al.*, 1985). During 1984-85, a survey was undertaken of TSWV on other crops grown adjacent to the fields of groundnut, tomato, urd and mungbeans showing severe infection by TSWV. Leaf samples of cowpea, chilli and brinjal showing symptoms of the virus disease in the field were collected and sap inoculated onto cowpea, chilli and brinjal. For sap inoculation, extracts from young infected leaves were prepared in cold 0.05M Phosphate buffer, PH 7.0 containing 0.02M mercaptoethanol. The symptoms in the different crops are described below:

COWPEA (Var. Local) : The primary leaves produced chlorotic local lesions within 4-5 days, which subsequently turned necrotic and dropped off. The first systemic symptoms were observed after 10-12 days as chlorotic spots on the young leaves. These leaves as they expanded showed slight downward curling with reddish brown necrosis of the veins on the under surface.

Subsequently, leaves showed necrosis. Necrotic streaks were also observed on the petiole and the stem. The growing bud showed necrosis, and subsequently the entire bud necrosed and the shoots produced in the axils there after showed small leaves with mosaic mottling. Many plants survived with top necrosis symptoms for several days.

CHILLI (Var. NP—46) : Systemic symptoms were observed after 15 days as chlorotic spots on the newly produced leaves. Out of 10 plants sap inoculated 3 plants produced top necrosis. Irrespective of the top necrosis all 10 inoculated plants showed reduction in leaf size and mosaic mottling with axillary shoot prolifiration. The mottling symptoms were similar to the mosaic symptoms induced by other viruses (Prasada Rao, 1976).

BRINJAL (Var. Pusa Purple Long) : Systemic symptoms were observed after 15-18 days as chlorotic spots on the young leaves. As the disease progressed these spots became clear chlorotic rings (Fig. 1) which turned necrotic later. Only few newly expanded leaves showed chlorotic rings. Ultimately infected plants were stunted with distorted leaves. Fruits produced on the infected plants were small, distorted having pale green blotches or rings (Fig. 2).

The identity of the virus from all the three hosts was established by inoculating onto the indicator hosts i.e. *Vigna unguiculata* (CV. C—152), *Chenopodium amaranticolar*, *Vigna mungo* (Var. UPU—1), *Lycopersicon esculentum* (Var. Pusa Ruby) and *Arachis hypogeae* (Var. TMV—2). These isolates produced typical reactions of

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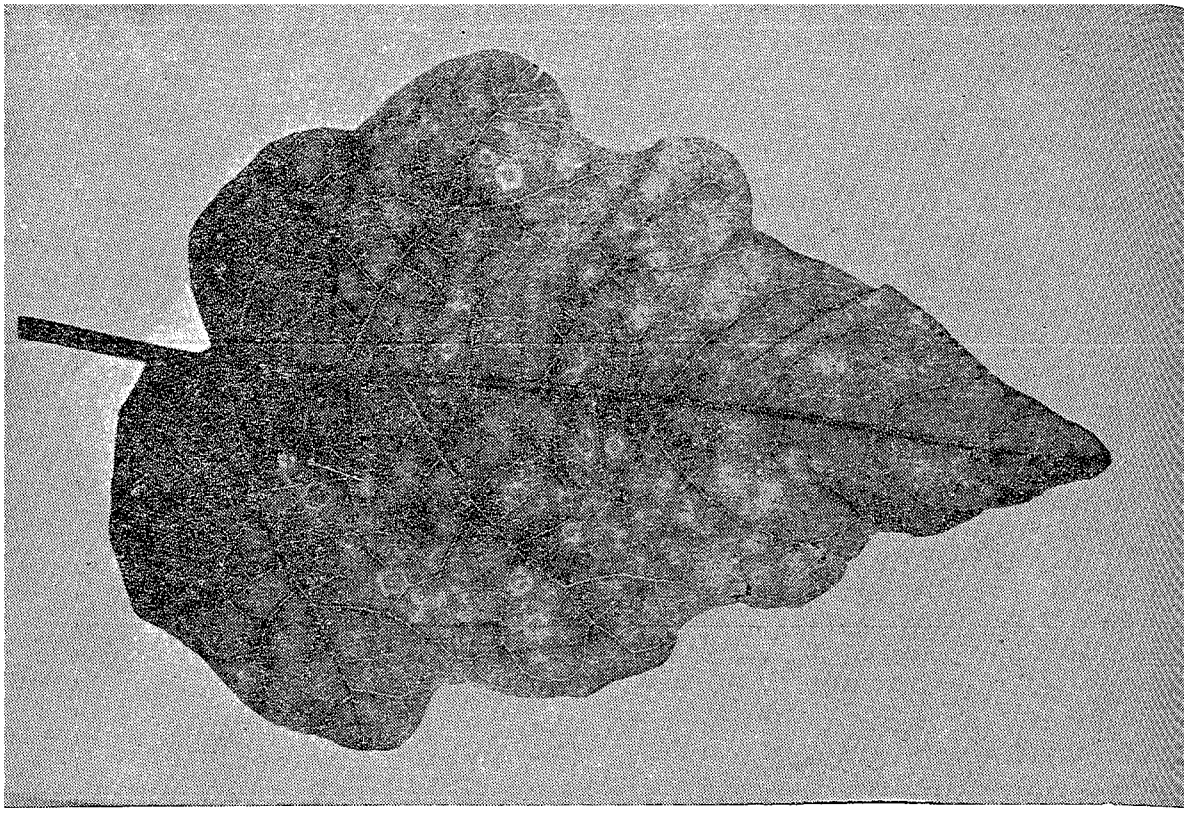
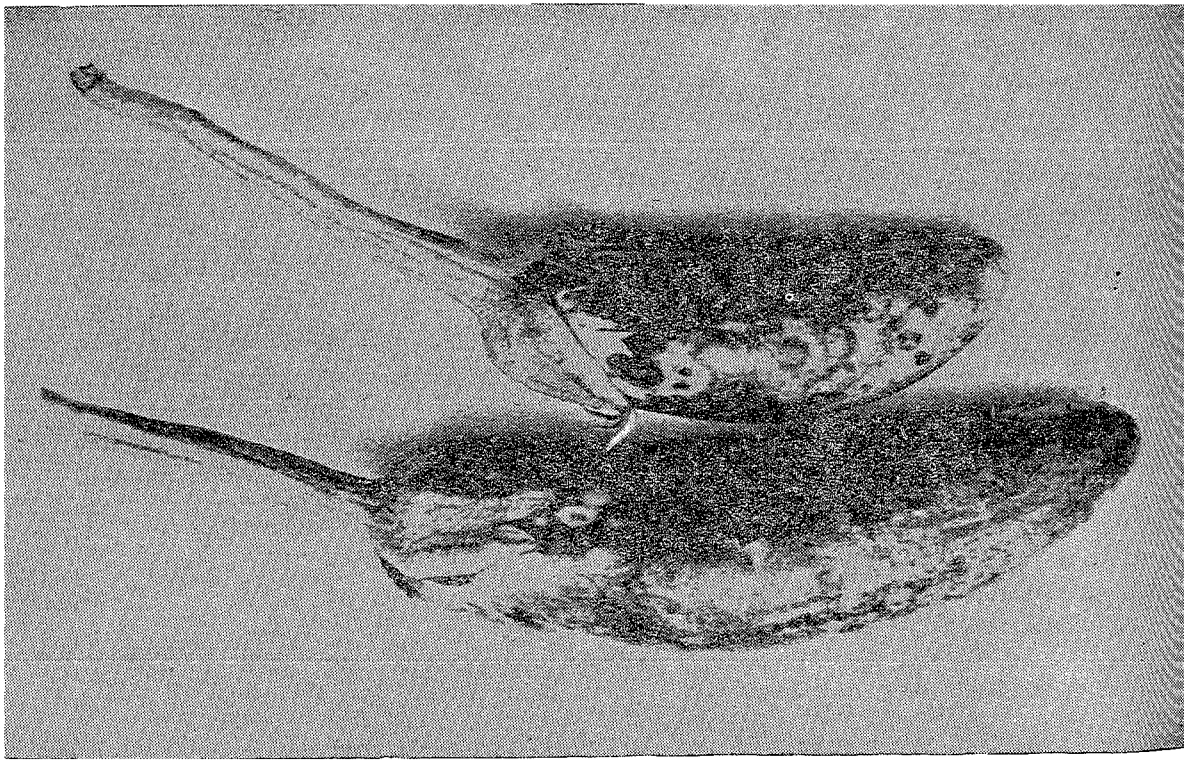


Fig - 2



TSWV on these indicator hosts as reported earlier (Ghanekar *et al.*, 1979 and Prasada Rao *et al.*, 1980). Further the samples were confirmed as TSWV by Direct antigen coating (DAC) form of Indirect Enzyme Linked Immunosorbent Assay (Hobbs *et. al.*, 1986). In the present ivestigations no attempts were made to study the thrip transmission or particle morphology of the virus, as such studies were earlier done in case of groundnut bud necrosis.

Cowpea (CV .C—152) is reported to be a good assay host for TSWV (Ghanekar *et.al.*, 1979) which produces chlorotic rings on the inoculated primary leaves followed by systemic symptoms. However, the natural occurrence of TSWV on cowpea, chilli and brinjal was not reported earlier.

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