

Histopathological deviation in *Cucurbita maxima* infected by watermelon mosaic virus (WMV)

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SUMMARY

The observation revealed that changes in the mesophyll of mottled cucurbit leaves were more closely crowded, longer and narrower in comparison to healthy leaves. The mesophyll in green areas of infected leaf were identical to healthy one, however mesophyll in yellow areas were reduced in number and smaller in size. In the stem of infected plants, xylem vessels were enlarged and reduced in number. The phloem and xylem were affected in later stage of the growth. Vascular bundles were reduced in size. In infected roots epidermal cells were recorded to be thinner than the healthy roots. The size of metaxylem and protoxylem were reduced in infected plants.

Key words : Histopathological changes, Watermelon mosaic virus, Pumpkin.

Cucurbita maxima (Pumpkin) is a popular cucurbit vegetable grown extensively throughout the country. It is severely infected by watermelon mosaic virus (WMV). In natural condition it causes heavy losses in yield. Diseased plants show various grades of symptoms i.e. from mild mosaic to severe mosaic and vein banding of infected leaves. Histopathological studies play an important role to understand the process of pathogenesis. The histopathological changes in virus infected plants have been studied by many workers in different plants. (Esau, 1956; Matthews, 1970, 81; Carrol and Kasuge, 1969; Paliwal, 1970; Bansal *et al.*, 1992). This communication deals with histopathology of root, stem and leaves of *Cucurbita maxima* L. infected with watermelon mosaic virus in comparison to healthy plants.

MATERIALS AND METHODS

All experiments were conducted in an insectproof chamber. *Cucurbita pepo* L. var. coserta plants were used as test plant. Samples of plant parts (Root, Stem and Leaves) were collected separately from healthy and virus infected plants. Care was taken while sampling to select as far as possible parts of equivalent age from diseased and healthy plants.

The healthy and infected leaves were collected separately, killed and fixed in chemical container with formalin-acetone alcohol after 24 hrs., washed in 70% alcohol and were subjected to dehydration using ethyl alcohol butanol grades. Infiltrated and embedded in paraffin wax, leaf tissues were sectioned on rotary microtome at 10 μ m thickness. The sections were

dehydrated and mounted in 'DPX' mounting medium (Johenson 1940). These sections were used for anatomical studies.

RESULTS AND DISCUSSION

Anatomy of leaf :

Changes in the mesophyll of mottled cucurbit leaves were studied by Doolittle (1920), who found the palisade cells of infected green areas were more closely crowded, longer and narrower than those of healthy leaves. The present investigations reveals comparable cells in the yellow areas were more nearly isodiametric than in healthy leaves, spongy parenchyma were more compact and plastids were smaller (Fig. 1 & 2). The mesophyll in green areas of infected leaves were identical to healthy one, however the mesophyll in yellow areas were reduced in number and smaller in size. Leaves infected young

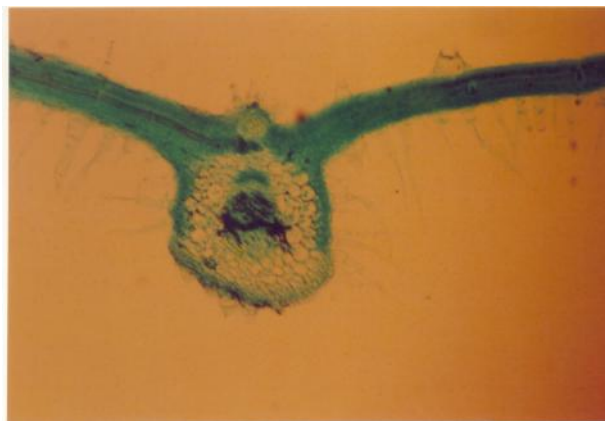


Fig. 1 : T.S. of Healthy leaf

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