

Influence of cucumber mosaic virus on growth, moisture and dry matter content of chilli (*Capsicum annum* L.)

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ABSTRACT

A study was made on the effect of two chilli strains (severe and mild) of cucumber mosaic virus infections on the growth, moisture and dry matter content in chilli. The infection affected the growth of the plants adversely. More dry matter and less moisture contents were found in diseased plants as compared to healthy plants. The effect was more pronounced with severe strain.

Key words : Metabolic activity, CMV, Chilli.

Chilli (*Capsicum annum* L.), also called red pepper is an important cash crop in India and grown for its pungent fruits which are commonly used both green and ripe. Chilli mosaic disease of chilli caused by cucumber mosaic virus (Anjaneyulu and Appararao, 1967; Pandey *et al.*, 2004). Most of the investigation, done in the past on this disease were confined to the characterization of the virus (Mishra, 1963; Rao *et al.*, 1970) and so far no study has been made on the physiology of infected plants to understand the effect of virus infection on the metabolism of host. In the present study, two locally collected chilli strains (mild and severe) were selected to see their effect on growth, moisture and dry matter content in popular "pusa jwala" variety of chilli.

MATERIALS AND METHODS

Observation were made after 10, 20, 30, 40 and 50 days of inoculation. Three lots of 25 chilli plants were taken, first and second lots were inoculated with mild and severe strains of the virus, respectively. While the third lot was kept as healthy (control).

Seedlings were 15 days old at the time of inoculation. The growth was measured in centimeter. The moisture content of root, stem and leaves of healthy and diseased chilli plants were determined. Root, stem and leaves from five healthy and five diseased plants were collected separately in polythene bags and weighed to determine the fresh weight. These were then transferred to an oven and dried at 65°C till a constant weight was obtained. The differences between fresh and dry weight was taken as the moisture content. The moisture content thus obtained has been expressed as per cent moisture on fresh weight basis.

Average dry weight of root, stem and leaves from

five plant were taken per treatment at each interval and evaluated as per cent dry matter content on fresh weight basis.

All experiments were carried out in an insect proof chamber the data were analysed statistically using the methods given by Chandel (2004).

RESULTS AND DISCUSSION

The perusal Table 1 show that both the strains reduce the growth of chilli plants, the severe strains induces more adverse effect than the mild one. When statistically analysed these data are significant at 5 per cent level. The perusal of data (Table 2 and 3) show that the infection had influenced the dry matter content and moisture level

Table 1 : Effect of severe and mild strain of cucumber mosaic virus on the growth of chilli plants

Days after Inoculation	Healthy plant	Plant height in (cm.) (Average)	
		Severe strain	Mild strain
10	7.0	4.0	5.5
20	10.0	7.0	8.0
30	15.0	9.0	11.0
40	21.5	12.0	16.0
50	33.0	17.0	21.5
Average	17.3	9.8	12.4
S.E.±	4.15	1.99	2.57
C.D. (P=0.05)	8.84	4.24	5.47

of the host plant. Root, stem and leaf samples taken from infected plants had less moisture content and more dry matter than their comparable healthy counterparts on fresh weight basis but the moisture content whether taken from healthy or infected samples increased gradually with