Influence of Cucumber Mosaic Virus on Growth, Moisture and Dry Matter Content of Chilli (*Capsicum annuum* L.)

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SUMMARY

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, *Capsicum annuum*

Chiili (*Capsicum annuum* 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 is caused by cucumber mosaic virus (Anjaneyulu and Appararao, 1967; Pandey *et al.*, 2004). Most of the investigations, 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

Observations 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 incoluation. 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 65ºC 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 shows that both the strains reduced the growth of chilli plants. The severe strain induced more adverse effect than the mild one. When statistically analysed, the data were non-significant at 5 per cent level except in 40 and 50 days of inoculation. The perusal data Table 2 and 3 show that the

Table 1 : Effect of severe and mild strains 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	7.00	4.00	5.5
20	10.00	7.00	8.00
30	15.00	9.00	11.00
40	21.5	12.00	16.00
50	33.0	17.00	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

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