

Studies on Control of Stem-rot of Papaya (*Carica papaya* L.)*

S. M. Jani and A. J. Patel

Department of Plant Pathology, Gujarat Agricultural University, Anand Campus, Anand

The papaya plants are attacked by a number of diseases but the stem-rot or foot-rot disease has become the limiting factor in maintaining orchards in healthy condition. This disease was recorded in Gujarat by Patel (1959) and pathogen identified as *Pythium aphanidermatum* (Edson) Fitz.

Fresh isolation of the fungus *P. aphanidermatum* was made from the diseased tissues of papaya stem and roots and pathogenecity of the same was proved. From the eight different media (Bactopepton agar, Beanmeal agar, Cornmeal agar, Czapeck's (DOX) agar, Oat meal agar, plain 2 per cent agar, potato dextrose agar and Richard agar) tried, the oat meal agar and corn meal agar were found to be best for the growth of the fungus. The results are in conformity with the findings of Bhargava (1941). Taking into consideration the eight different temperatures (15°C, 20°C, 25°C, room temp. 28°C, $\pm 1^\circ\text{C}$; 30°C, 35°C, 40°C and 45°C) and pH (4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0 and 7.5) of the media on oat meal agar, the maximum growth

of the isolate was observed in the media adjusted to pH 5.5 and incubated at the temperature at 30°C.

The experiments were laid out in completely randomized design with the treatments of bordeaux mixture, aureofungin, dithane Z-78 and control at the horticultural farm and school farm of the Institute of Agriculture, Anand and farmers' field of the nearby village to control the disease. Fungicides were applied by pasting the stem and drenching the soil. The treatments were applied three times at an interval of 3 weeks during the months of June and August, 1969. First application started at the commencement of the rainfall. Weekly observations were recorded for the percentage plant damaged by that disease. The results obtained are summarized in Table 1.

The data in Table 1 revealed that the treatment of bordeaux mixture was found to be the best for the control of the disease, which was on par with the treatment of aureofungin. The treatment of dithane Z-78 failed to control the stem-rot infection. Nirvan (1953) also found that the disease can be controlled by 6:6:50 bordeaux mixture when the stem and exposed soils were drenched with the same.

* Part of M.Sc. (Agri.) thesis submitted by the senior author to the Sardar Patel University, Vallabh Vidyanagar, Anand (Gujarat).

TABLE

Efficacy of various fungicides against the stem-rot of papaya.

Sr. No.	Treatment	Concentration maintained for 20 plants		Mean % plants damaged
		For pasting	For drenching	
1.	Bordeaux mixture	500 gm CuSO_4 + 500 gm quick lime + 5 lit. water	12:12:100	0.01
2.	Aureofungin	1 gm aureofungin + 10 ml liquid soap + 5 lit. water	3 gm aureofungin + 30 ml. liquid soap + 100 lit. water	10.95
3.	Dithane Z-78	30 gm dithane Z-78 + 5 lit. water	300 gm dithane Z-78 + 100 lit. water	32.42
4.	Control	5 lit. water	100 lit. water	36.27
	S. Em. $\pm$			3.45
	C. D. at 5%			11.95
	C. V. %			2.22

ACKNOWLEDGEMENT

Authors are grateful to Dr. M. V. Desai, Ex. Professor and Head, Department of Plant Pathology and Bacteriology, for his keen interest and important suggestions regarding this work. They are also thankful to Dr. R. M. Patel, Director, Institute of Agriculture, Anand

for providing necessary facilities.

(Received on August 30, '77)

REFERENCES

- Bhargava, K. S. 1941. *Pythium aphanidermatum* (Edson) Fitz. on *Carica papaya* L., *Curr. Sci.*, **10**: 212-213.
- Nirvan, R. S. 1953. Control of papaya foot-rot, *Indian Phytopath.*, **6**: 47-48.
- Patel, A. J. 1959. Plant diseases in and around Anand. I. Studies on bacterial diseases of plants and II. Survey of plant diseases other than bacterial thesis. Institute of Agriculture, Anand.