

CHILLI NARROW LEAF DISEASE

Dr. (Mrs) I.J.de Soyza, Research Officer
Maha Illuppalama

PROGRESS OF RESEARCH WORK TO DETERMINE THE CAUSAL FACTOR OF "THE LITTLE LEAF DISEASE OF CHILLI"

The little or narrow leaf disease of chilli was first observed (in the Polonnaruwa district) in 1982 and later in Mahaweli 'H' area, Anuradhapura, Matale and Kantalai districts.

Symptoms:

1. At first the basal part of the young leaves appear paler than the tip.
2. Later the leaves become very narrow with only a thin strip of lamina along the mid-rib.
3. The petioles and stem-internodes become shortened resulting in a compact rosette.
4. In some plants only one or two branches show these symptoms while the rest of the plant appears normal.
5. Flowering may continue after the appearance of these symptoms but pods formed are small and few.

Nature and spread of the disease:

1. The disease originates in a small area in the field and spreads rapidly through out the field.
2. Foliar nutrient sprays have failed to 'cure' the condition indicating factors other than nutritional deficiency.
3. Application of heavy doses of sulphur failed to reproduce the 'narrow leaf' symptoms thus eliminating 'sulphur toxicity' as the cause.

Therefore the narrow leaf condition could be probably due to pathogenic micro-organisms.

Search for the probable casual organisms.

2. Transmission studies for diagnosis of virus and mycoplasma like organisms (MLO) were done. It was not possible to reproduce the disease symptoms in healthy chilli plants by transmission of sap from diseased plants. Using aphids as disease vectors failed to reproduce the typical symptoms in healthy plants.

But disease appeared in healthy chilli plants when they were grafted with buds or scions from diseased chilli or tomato plants

Although vector transmission studies have failed so far it has been often observed that virus/MLO transmitting insects (plant and leaf hoppers, mites, aphids and white flies) are commonly associated with the diseased chilli plants. Therefore, studies on disease transmission by using vectors are being continued.

The evidence gathered so far suggest involvement of virus or mycoplasma like organisms to be the cause of the 'narrow leaf disease' of chilli.

Additional information:

1. Leaf deformation was observed in tomato plants very near to the diseased chilli plants (in farmers field at Galenewa (Mahaweli H area)).
2. When diseased plants were transplanted in green house conditions (using the same soil) some plants developed healthy shoots after 1-2 weeks while others developed shoots with mosaic symptoms on the leaves.
3. When diseased plants were uprooted and replanted at the same site they developed new healthy shoots.
4. When diseased plants were subjected to water stress they developed new healthy shoots.
5. New flush showed same symptoms after all diseased shoots were removed.
6. Application of antibiotics effective against MLO failed to give any positive response.

Precautionary measures to be adopted:

1. Seeds from diseased plants should not be used for planting.
2. The diseased plants should be removed and destroyed as soon as the initial disease symptoms appear.
3. Pesticides should be regularly sprayed to control possible insect vectors.
4. A suitable mixed cropping system should be adopted to reduce associated risks.

@@@@@@@@@@@@@@@@

COW DUNG EXTRACT CONTROLS
RICE BACTERIAL BLIGHT (BB)

Five foliar sprays were applied 10,15 days after clip inoculation of BB at maximum tillering stage of the rice crop. Cow dung slurry was top dressed, and also applied basally. According to the observations recorded below foliar spray of cow-dung extract (at 20g/litre) controlled BB as effectively as Penicillin, Panshamycin and Streptomycin.

(IRRI News Letter, Vol.11 No.2, April, 1986)

Treatment	Dose/ha.	Disease Index (%)	
		Season 1	Season 2
Penicilin (100 PPM)	50 g	38	22
Panshamycin (250PPm)	750 g	37	42
Streptomycin (100 PPM)	500 g	39	19
Cowdung extract (20g/litre)	10 kg	41	25
Cow urine(20 ml/litre)	10 litres	50	31
Cow dung Slurry(top dressing)	5 tons.	43	36
Cow dung basal application	10 tons	46	32
Control - (untreated)		62	50