*S. dichotoma* among the collateral hosts of pseudo-mosaic disease of tobacco. Wilson and Sathiarajan (1965) reported a leaf distorting virus of *S. indica* which was transmitted by grafting. There is no earlier report of any sap transmitted or aphid transmitted virus disease of *S. Indica* and hence, this forms the first record of a mosaic disease of this plant.

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# FIELD SCREENING OF SHORT DURATION PIGEONPEA LINES FOR RESISTANCE TO BACTERIAL LEAF SPOT AND STEM CANKER *(Xanthomonas campestris pv. cajani)*

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### ABSTRACT

Thirty five determinate and non-determinate pigeonpea types of early duration were screened against bacterial leaf spot and stem canker (*Xanthomonas campestris pv. cajani*). ICPL 87 and ICPL 85017 in determinate and ICPL Nos. 84048, 85048, 85049 and ICPH.22 in non-determinate types were resistant to bacterial leaf spot. Among these lines, the non-determinate line ICPL 85049 showed resistant reaction to stem canker also. The other five lines showed moderate resistance to stem canker. In general, red-flowered types, whether determinate or non-determinate, were found more susceptible than yellow-flowered types.

KEY WORDS : Pigeon pea, Varietal screening, Bacterial leafspot, Stem canker.

Bacterial leaf spot and stem canker of pigeonpea were reported to occur in different parts of India (Kulkarni *et al.*, 1950, 1952; Gaikward and Kote, 1981; Reddy *et al.*, 1987) and Sudan and Panama (Nene *et al.*, 1984). The disease usually appears between July and

**Table 1. Reaction of some early pigeonpea lines to bacterial leaf spot and stem canker at Vamban during Kharif 1987.**

| Entries | Growth Habit | Bacterial leaf spot scale | Bacterial stem canker scale | Yield (Kg/ha) |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| ICPL 4 | DT | 6.3 | S | 714 |
| ICPL 87 | DT | 2.3 | MR | 824 |
| ICPL 151 | DT | 5.7 | S | 799 |
| ICPL 83022 | DT | 5.5 | S | 643 |
| ICPL 83024 | DT | 5.2 | S | 433 |
| ICPL 84031 | DT | 5.6 | S | 774 |
| ICPL 84032 | DT | 6.3 | S | 838 |
| ICPL 84048 | NDT | 2.9 | MR | 628 |
| ICPL 84052 | NDT | 4.9 | S | 442 |
| ICPL 85012 | DT | 8.4 | S | 759 |
| ICPL 85014 | DT | 5.2 | S | 687 |
| ICPL 85016 | DT | 7.8 | S | 635 |
| ICPL 85017 | DT | 2.1 | MR | 711 |
| ICPL 85031 | DT | 7.1 | S | 415 |
| ICPL 85036 | NDT | 3.5 | S | 420 |
| ICPL 85045 | NDT | 4.2 | S | 528 |
| ICPL 85046 | NDT | 3.2 | S | 502 |
| ICPL 85048 | NDT | 2.0 | MR | 653 |
| ICPL 85049 | NDT | 1.9 | R | 673 |
| ICPL 85050 | NDT | 3.5 | S | 446 |
| ICPL 85051 | NDT | 4.7 | S | 278 |
| ICPL 85054 | NDT | 4.4 | S | 565 |
| ICPL 85057 | NDT | 6.9 | S | 524 |
| ICPL 86005 | DT | 5.1 | S | 315 |
| ICPL 86007 | DT | 7.8 | S | 713 |
| ICPL 86012 | DT | 7.4 | S | 773 |
| ICPL 86024 | NDT | 3.5 | S | 536 |
| ICPL 86029 | NDT | 6.1 | S | 358 |
| ICPH 9 | DT | 8.1 | S | 667 |
| ICPH 10 | DT | 5.9 | S | 902 |
| ICPH 11 | NDT | 6.2 | S | 505 |
| ICPH 22 | NDT | 2.0 | MR | 447 |
| MANAK | DT/NDT | 6.7 | S | 547 |
| T 21 | NDT | 3.1 | S | 601 |
| UPAS 120 | NDT | 3.1 | MR | 538 |

**Stem Canker scale**

R = Stem lesions upto 2 mm in size; MR = Stem lesions 2 - 20 mm; S = Stem lesions > 20 mm;

**Plant type**

DT = Determinate NDT = Non-determinate

**Bacterial leaf spot scale**

1 = Less than 1% of leaf area affected
3 = 1.1 - 5% of leaf area affected
5 = 5.1 - 25% of leaf area affected
7 = 25.1 - 50% of leaf area affected
9 = Above 50% of leaf area affected

September, when the relative humidity is 80 to 90% and temperature ranges from 24°C to 31°C (Kulkarni *et al.*, 1952). A severe outbreak of the disease was observed in determinate and non-determinate type of early pigeonpe lines raised under adaptive yield trial during Kharif, 1987 at National Pulses Research Centre, Vamban, Tamil Nadu and the result of screening is reported.

## MATERIALS AND METHODS

Eighteen determinate lines and seventeen non-determinate lines of pigeon pea were evaluated for their reaction to the bacterial leaf spot and stem canker. The crop was raised in Kharif, 1987 fertilised with 25 kg nitrogen as urea and 50 kg phosphorus as superphosphate. Spacing adopted was 30 cm x 10 cm. The average minimum and maximum temperatures were 37.2°C and 27.5°C respectively during the crop period. Relative humidity was 89.4 per ent. The incidence of the disease in different entries are presented in Table 1.

## RESULTS AND DISCUSSION

ICPL 87 and ICPL 85017 in determinate and ICPL 84048, 85048, 85049 and ICPH 22 in non-determinate group were found resistant to bacterial leaf spot. Among these lines, the non-determinate line ICPL 85049 showed resistant reaction to stem canker also. The other five lines showed moderate resistance to stem canker. In general, red flowered types, whether determinate or non-determinate (ICPL 85012, 85057, 86005, 86007, 86012) were found more susceptible than yellow flowered types. Mahrshi (1986) reported S.80 to be moderately resistant and Reddy *et al.*, (1987) reported that ICP 12807, ICP 12848, ICP 12849, ICP 12937, ICP 13051, ICP 13116 and ICP 13148 to be field resistant. They also reported lines with green stem colour showed higher susceptibility than the lines with purple or sun red stems. Among the field resistant lines, ICPL 87 recorded high yield of 824 kg/ha.

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