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HOST RANGE OF SUGARCANE MOSAIC VIRUS (SCMV-B) FROM RAYALASEEMA

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SUMMARY

Sugarcane mosaic virus (SCMV) is important seed piece transmissible disease. Most of the cultivated varieties are susceptible to this virus in Rayalaseema region of Andhra Pradesh. Though lot of work has been done on this disease in U. P. (Rishi, 1969; Bhargava *et al*; 1971 a, b; Srivastava *et al*; 1977), Tami Nadu (Singh, 1976) and Maharashtra (Ghorpade and Joshi, 1982), no systematic work has been done in Rayalaseema region of Andhra Pradesh. Therefore preliminary study of host range of SCMV was made.

The virus inoculum was collected from COT-8201 (ruling Sugarcane variety in A. P.) from Agricultural Research Station, Perumalapalli, and it was maintained on sweet sorghum cv. Rio. Twenty plants of each species were inoculated with freshly prepared inoculum of the virus. The inoculated plants were observed for 4–6 weeks in the glass house. Healthy sweet sorghum cv Rio was used as control. The plants which did not show the symptoms of disease were further tested for susceptibility by back inoculation to sweet sorghum cv Rio by the sap extracted from the inoculated plants. The virus was identified as SCMV-B based on morphological and serological tests (Ouchterlony double gel diffusion and immunosorbent electron microscopy) against antisera of SCMV-A, B, D, H and I.

Different plants species used for host range studies of SCMV-B are presented in table Perusal of the table indicated that majority of plants in family Graminea were susceptible to SCMV-B. However, nine plants of Leguminesae, four of Solanaceae, to each of Chenopodiaceae, Violaceae, Euphorbiaceae and Caryophyllaceae, three each of Malvaceae and Compositae did not show SCMV-B symptoms on inoculation. Of the 25 species tested in Graminea, only four were not infected by SCMV-B. These included *Cyprus rotundus*, *C. bulbosus*, *Hordeum vulgare* and *Oryza sativa*. However, rice and barley were reported to be susceptible to SCMV by Abbott and Tippett (1964) and Anzalone and Lemey (1968). Infection in Graminea, ranged from 10 to 100 per cent (Table) *Avena sativa*, *Brachiaria mutica*, *Cynodon dactylon*, *Eleusine coracana* cv. Kalyani and AKP-2, *Leptochloa panica*, *Panicum miliare*, *Paspalum conjugatum*, *Polypogon monspeliensis* are the new hosts found susceptible to SCMV-B. Because of their wide prevalence around the vicinity of sugarcane field the possibility of posing problems as potential hosts of the virus cannot be ruled out.

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TABLE 1

Host range of Sugarcane mosaic virus (SCMV-B)

Plant species	*Infection (%)*
FAMILY : GRAMINEA	
Avena sativa L.	20
Brachiria mutica (Forsk) Stapf.	30
Cenchrus ciliaris L.	40
Cynodon dactylon (L.) Pers.	20
Cyperus rotundus L.	0
C. bulbosus Vabl.	0
Dactyloctenium aegypticum (L) Beouv.	50
Digteria adscenens Henn.	40
Echinochloa crusgalli Beavu	20
Eleusine coracana Geartn. c. v. Kalyani	30
E. Coracone Geartn. cv. APK-2	20
E. Indica Geartn.	20
Hordeum vulgare L.	0
Leptocholoa panica pers	10
Oryza sativa L. cv. IR-50	0
Panicum miliaceum L.	30
P. miliare Lam	40
Paspalum conjugatum Berg	40
Pennisetum typhiodes (Burn.) Stapf and C. E. Hubh cv. Balaji	40
cv. BJ-104	50
cv. TBS-11	40
Polypogon monspeliensis L.	30
Setaria italica L. cv. Arjuna	30
cv. SiA-326	30
Setaria glauca L.	10
Sorghum bicolor (L) Moench cv. N-13	100
cv. CSH-5	90
cv. CSH-9	95
cv. Co-24	95
Triticum aestivum L.	20
Urochloa mosambicensis (Hack) Dandy	20
Zea mays L. cv. DHM-130	60
cv. Popcorn	60

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Wider spacing both row to row and plant to plant significantly increased the disease ce. Almost double disease incidence was recorded in 60 × 15 cm spacing irrespective of s as compared w . 30 × 10 cm spacing. Similar results were reported by Heathcote to beet mild yellows virus and by Reddy *et al.* (1983) for tomato spotted wilt virus. The disease incidence in wider spacing could be due to greater activity of whiteflies in sunlight. In narrow spacing, the dense plant population cut the light considerably g to less activity of the whiteflies. The second possible reason may be that after n or rainfall, a different micro-climate develops in dense plant population which may me tal for the vector. It has been observed that in narrow spacing, on the surface of es of densely populated plants, more water drops exist for a longer time and when the s visit such leaf surface their wings are stuck in these drops and ultimately the white-

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