

SCREENING OF GENETIC STOCK OF SUGARCANE AGAINST RED ROT DISEASE

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Abstract

Among the 149 varieties of sugarcane screened against red rot, 57 were immune, 6 resistant, 9 intermediate resistant, 14 intermediate and 63 intermediate susceptible to very highly susceptible. Among the promising varieties L-118, L-62/96, BL-4, Triton, CoL. 54, Co. 97S, CP. 57/614 and R-366 were very highly resistant while L-113, L-116, CoL. 29, CoL. 44, Co. 312, Co. 564, B.4360 and BL. 19 were highly susceptible.

Red rot caused by *Colletotrichum falcatum* Went., is the major disease of sugarcane in the country. Reduction in weight of 12-41.5 percent, decrease in brix of juice from 2.7 to 21.7 percent and the decrease in expected sugar recovery by 17.1-36.5 percent, depending upon the severity of the disease and the variety planted has been reported (Sandhu *et al.*, 1969). Losses due to this disease are especially severe in the areas of high rainfall (Saleem & Gill, 1981). In this paper the results of screening of advanced lines of sugarcane varieties of Sugarcane Research Institute, Faisalabad against red rot are reported.

Material and Method

A four rows trial each of 12' x 3' was laid out in the area of Sugarcane Research Institute, Faisalabad. A total of 149 promising varieties of sugarcane selected from sugarcane varietal trials were screened against red rot. Forty canes of each variety were inoculated with a spore suspension of *C. falcatum* following the method of Singh & Wariatch (1977) and Gill & Saleem (1982). Inoculations were made in September of each year for 1980-81 and 1981-82 crops. Disease incidence data were recorded after 2 months of inoculations and the average percentage of disease incidence for the two consecutive years is given.

Results and Discussion

The data on red rot incidence were converted to 0.9 scale of Hutchinson (1968).

TABLE 1. REACTION OF DIFFERENT SUGARCANE VARIETIES TO RED ROT DISEASE, CONVERTED TO HUTCHINSON'S SCALE (0-9)

Immune 0.00%.	Very highly resistant 1-2%.	Highly resistant 3-4%	Resistant (5-8%)	Intermediate resistant (9-14%)	Intermediate (15-23%)	Intermediate susceptible (24-40%)	Susceptible (41-50%)	Highly Susceptible (51-60%)	Very highly susceptible (61% & above).
0	1	2	3	4	5	6	7	8	9
57 varieties viz,	Nil	Nil	6 varieties:	9 varieties viz:	14 varieties viz:	12 varieties viz.	7 varieties viz	7 varieties viz;	37 varieties viz:
L-118, L.62/96 BL.4, Co. 951 Co. 975, Co.L. 54, Triton, CP. 57/614, R-366, BF-131. BF-138, HF-145, HF-146, HF-147, HF-148, S-7253, S-7991, S-77B-37, 82, 119, 121, 143, 148, 224, 272, 342, 121, S78US-155. 216, 220, 249, 252, 266, 296, 303, 346, 377, 388, 433, 565, 587, 616, 622, 634, 694, 697, 724, 790, 801, 824, S79B-75, 171, 175, 383.	BF-128, CP57/ 603, S77B-9, 295, S78US- 437, S79B- 155.	CP.43/33 BF-129, S77B-278, 494, S78US- 289, 401, 786, 800, S79B-375.	L-126, BF-135 NC o. 310, S77B-229, S78B-28. 46, 48, 118, S78US-280, 443, 509, 583, 789, S79B-133, 578, S79B-1199.	L.120, Co. 312, BF-134, S-8004, S77B-90, 471, S78B- 97, 132, 205	BL-19, BF-132, BF-141 S78B-72, 115, S78US- 446, 775.	R-3, BF-142, Q. 84, S78B- 114, 135, S78US-775, S79B-361, BF-136, BF-137, BF-139, BF-140, BF-143, S. 8039, S77B-1, 136, 187, 188, 207, 226, 244, 481, S78B-8, 89.	BL-113, L-116, BL-13, B. 4360, Co. 547, Co.564, Co. 603, Co.L. 29, Co.L. 44, BF-130, BF-136, BF-137, BF-139, BF-140, BF-143, S. 8039, S77B-1, 136, 187, 188, 207, 226, 244, 481, S78B-8, 89.	S78US-315, S79B-26, 28, 29, 56, 87, 88, 205, 443, Ponda Co. 401, Ponda Co. 436.	

Out of 149 varieties screened under field conditions, 57 varieties showed immunity to the disease, 6 varieties were resistant, 9 intermediate resistant while rest intermediate susceptible to very highly susceptible (Table 1). Among the promising varieties L-118, L.62/96, BL-4, Triton, CoL.54, Co. 975, CP. 57/614 and R-366 showed immunity to disease and the varieties CoL. 29, CoL. 44, Co. 312, L. 113, L. 116, B. 4360, BL-19 and Q.84 were very susceptible.

Such similar results were observed by Singh & Wariatch (1977) who found that CoL-29 and Co. 312 are susceptible to red rot and L. 118, R-366 and CP.57/614 are highly resistant. The varieties not approved so far for general cultivation in the country and found resistant/ immune in this study are being tested for their other agronomic traits.

References

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