A NEW SORGHUM GENOTYPE AS SOURCE OF STABLE RESISTANCE TO DOWNY MILDEW.

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DOWNY mildew of sorghum caused by *Peronoscleropora sorghi.* (Ito) Shaw is a disease with destructive potential and capacity for epidemic development. Cultivation of resistant hybrids and varieties is the most feasible way to combat this disease. In the process of identifying resistant sources, different epidemeiologically meaningful inoculation techniques were adopted and different sources of resistance have been reported and QL-3 is the only stable source of resistance[1]. Several sorghum genotypes were tested for their resistance to downy mildew since the inception of the 'All India Co-ordinated Sorghum Improvement Project'. Eight elite sorghum genotypes comprising of hybrids were tested for downy mildew resistance by infector row technique in a single row of 5 m in 3 replications at Regional Research Station, Dharwad[2] from 1977–1981, in *kharif* using resistant check (QL-3) and susceptible checks (DMS-652 and IS-643). In this technique all these genotypes showed high level of resistance although they were exposed to both oospores and conidia; particularly a selection from Nandyal cultivar which was found to be completely free from both systemic infection and local lesions and behaved as QL-3. Further, to confirm the reaction of these eight genotypes, a rigorous inoculation technique (*i.e.* sandwitching technique) was employed during July 1981. In this technique, one day old seedlings were sandwitched in between systemically infected leaves (collected prior to conidial production) and incubated at 20°C. After 24 hr of incubation, the seedlings were found to be copiously covered by white sporemass and mycelium. The concentrations of conidia varied from 350–500/ml water. One hundred such seedlings from each genotype and checks were planted in pots in three replications. It was repeated in August and September 1981. Observations on downy mildew appearance indicated that Nandyal selection was consistently free from both systemic infection and local lesions behaving as QL-3, whereas other genotypes were found to be highly susceptible behaving as DMS-652 and IS-643 (table 1). The Nandyal selection is designated as DMRS-1, which has purple plant type and flowers in 76–80 days in *Kharif* season. The seed of this genotype are available with the senior author.

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1. Williams, R. J., Dange, S. R. S., Mughogho, L. K. and Rao, K. N., *Plant Dis.*, 1982, **66,** 807
2. Anahosur, K. H. and Hegde, R. K., *Mysore J. of Agric. Sci.*, 1979, **13,** 449.

Table 1 *Percent systemic infection of elite sorghum genotypes to peronosclerospora sorghi.*

	Infector row technique				Sandwitching technique			
						1981		
Genotype	1977	1978	1979	1980	1981	July	August	September
DMRS-1 (Nandyal sel.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CSH-1	4.7	2.91	23.33	14.50	35.00	100.0	100.0	100.0
CSH-5	8.6	0.0	12.90	2.90	9.31	100.0	100.0	100.0
CSH-6	0.0	0.0	0.0	0.0	0.0	100.0	100.0	100.0
CSH-9	5.5	21.76	9.93	12.70	24.87	100.0	100.0	100.0
SPV-104	0.0	0.0	8.0	0.0	—	100.0	100.0	100.0
SPV-126	0.0	0.0	6.89	3.20	0.0	100.0	100.0	100.0
SPV-346	—	—	12.50	2.30	19.04	100.0	100.0	100.0
QL-3 (RC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DMS-652 (SC)	84.40	100.0	100.0	98.40	93.24	100.0	100.0	100.0
IS-643 (SC)	—	—	100.0	92.00	100.0	100.0	100.0	100.0

RC = resistant check; SC = susceptible check