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Short Communication

SOME OBSERVATIONS ON THE INCIDENCE OF QUICK WILT IN THE GERMPLASM COLLECTION OF GENUS *PIPER*

K.C. Velayudhan, V.K. Muralidharan and V.A. Amalraj

National Bureau of Plant Genetic Resources
Regional Station, Vellanikkara, Trichur (Kerala)

Root rot or quick wilt disease of black pepper caused by *Phytopthora palmivora* is a serious problem faced by cultivators in Kerala. Systemic and contact fungicides such as metalaxyl and Bordeaux mixture are not always effective in controlling the disease under field conditions. Therefore, search for genes tolerant or resistant to the disease among the wild and cultivated species in western ghat areas is given a high priority. During 1987-1989, over 400 collections of cultivated and wild *Piper* species have been made. Out of the above collections 233 surviving ones belong to *Piper nigrum* and a few to the closely related other *Piper* species from the forest areas in Kerala, Tamil Nadu and Karnataka. The collections were maintained in pots and also under rapid multiplication in partial shade on sandy loam soil in Vellanikkara, Trichur during 1989. Plant protection measures were taken regularly, to prevent loss.

During June and July, very high incidence of Quick wilt problem is observed because of favourable weather conditions at Vellanikkara and most of the germplasm material, both in pots and under rapid mutliplication on ground were uniformly infected. The infection was extremely severe during 2nd and 3rd week of July when most of the highly infected lines died. However, a few collections were found to survive under both the condition and observations were taken on the basis of intensity of disease on the stem and leaves and also on necrosis on a 0-5 scale both in potted plants and those under rapid multiplication to identify tolerant/resistant types. On the basis of average values frequency class distribution was done: 1–1.5 (very low), 1.6–2.1 (low), 2.2–2.7 (medium low), 2.8–3.3 (medium) 3.4–3.9 (medium high), 4.0–4.5 (high) and above 4.6 (very high).

Based on the observations, 9 collections were scored having very low incidence of the disease, 16 low and 18 medium. The individuals of Ist category were usually without any symptoms except for mild yellowing symptions on the leaves. High or very high disease scoring collections died

within few days. Out of the collections with very low disease incidence, 6 were cultivated types *P. nigrum*, 2 wild *P. nigrum*, and 1 wild *P. trichostachyon*. Under the category of low incidence, 13 were cultivated *P. nigrum* 1 wild *nigrum* and 2 were wild unidentified species which seem to be variant forms of *P. nigrum* from forest areas situated above 90 m in Western ghats.

The observations presented are of interest as the incidence was very severe inspite of drenching with Bordeaux mixture and spraying with metalaxyl. Those securing low and very low scores will be subjected to inoculation studies to confirm their behaviour. It is also interesting to see that tolerance is found more in the collections from Idukki and Pathanamthitta districts where pepper cultivation has been more ancient.

Table 1. Area-wise range of tolerance to Quick wilt in collections of cultivated and wild *Piper* species

District	Wild		Cultivated	
	Range	No. of Collections	Range	No. of Collections
Idukki	1.0 – 5.1 (very low – very high)	21	1.0 – 5.1 (very low – very high)	58
Kottayam	2.2 – 5.1 (Medium low –very high)	8	–	–
Pathanamthitta	2.8 – 4.5 (Medium –high)	5	2.8 – 5.1 (Low–very high)	31
Palghat (Silent Valley)	1.0 – 5.1 (Very low– very high)	36	–	–
South Kanara	2.6 – 5.1 (Medium low –very high)	15	–	–
North Kanara	2.7 – 5.1 (Medium low– very high)	23	2.8 – 5.1 (Medium– very high)	21
Tirunelveli	1.6 – 5.1 (Low-very high)	12	1.6 – 4.5 (Low-high)	2
	Total	120		112

Table 2. Origin of Quick wilt tolerant lines in collections of wild and cultivated *Piper* species

Class	Local name	I.C. Nos.	Species	District	Status
Very Low	Karimunda	V–3646	*P. nigrum*	Idukki	Cultivated
(1–1.5)	Nadan	V–3657	"	"	"
	–	V–3671	"	"	"
	–	V–3675	"	"	Wild
	Vattamunda	V–3679	"	"	Cultivated
	"	V–3692	"	"	"
	Karinthakara	V–3867	"	Pathanamthitta	"
	–	V–4162	*P. trichostachyon*	Palghat	Wild
	–	V–3724	*P. nigrum*	Idukki	"
Low	–	V–3631	"	"	"
(1.6–2.1)	–	V–3643	"	"	Cultivated
	–	V–3648	"	"	"
	–	V–3665	"	"	"
	Kuthiravali	V–3690	"	"	"
	–	V–3702	*Piper* sp.	"	Wild
	Neelamundi	V–3711	*P. nigrum*	"	Cultivated
	Vattamundi	V–3713	"	"	"
	Narayakkodi	V–3800	"	Pathanamthitta	"
	Palikkodi	V–3812	"	"	"
	Karivali	V–3865	"	"	"
	–	V–3866	"	"	"
	Cholakkodi	V.3899	"	Kottayam	"
	–	V.4131	*Piper* sp.	Palghat	Wild
	–	V.4187	*P. nigrum*	Tirunelveli	Cultivated
	–	V.4211	*Piper* sp.	"	Wild
	–	V.4216–A	*P. nigrum*	"	Cultivated