

FIELD RESISTANCE OF CAPSICUM HYBRID YOLO WONDER IMPROVED X KAU CLUSTER TO BACTERIAL WILT

Pseudomonas solanacearum E. F. Smith which causes wilt, limits the cultivation of chilli especially in warm humid tropics. Goth *et al.* (1983) reported that KAU Cluster was resistant to four race 1 isolates and one race 3 isolates of *Pseudomonas solanacearum*. Peter *et al.* (1984) evaluated four hot chillies, Pant C-1, KAU Cluster, White Kanthari and Chuna along with six U. S. cultivars, Yolo Wonder Improved, Hybrid Pepper Bell Boy, Sweet Red Cherry Pickling, California Wonder, 672 Hungarian Wax and Cubanelle 78 V 2860 for reaction to nine isolates of *Pseudomonas solanacearum* (race 1 and race 3). No chilli lines tested were resistant to all nine isolates K 60, W 82, W 295, FF, A 21, TFP 12, TFP 13, 126408-1 and Tifton 80-1. Only A 21 isolate was pathogenic to all the chilli lines. The most resistant was Pant C-1 which showed resistance to K 60, W 82, W 295 and FF isolates and moderate resistance to Tifton 80-1. KAU Cluster had resistance to K 60, W 82, W 295, FF and Tifton 80-1 isolates but was highly susceptible to all other isolates used. KAU Cluster was also resistant to *Phytophthora capsici* and *Meloidogyne incognita*. Pious (1985) also observed that the line KAU Cluster was resistant to bacterial wilt. The present study aimed to transfer wilt resistance from KAU Cluster and Pant C-1 to a few selected U. S. cultivars and evaluate the F_1 hybrids for their field reaction. The U. S. cultivars are Hungarian Wax, Sweet Red Cherry Pickling, Early Calwonder, Cubanelle and Yolo Wonder Improved. The ten F_1 hybrids were developed through hand emasculation and pollination during July to November, 1985. The ten F_1 hybrids along with KAU Cluster and Pant C-1 were spot planted with a known suscept (Hungarian Wax) to study the host reaction to the bacteria. Ooze test was done to confirm bacterial wilt. Observations were recorded on number of healthy plants where Hungarian Wax wilted. The genotypes were scored according to Mew and Ho (1976), R—Resistant <20% wilted, MR—moderately [resistant > 20 <40% plants wilted, MS—moderately susceptible > 40 < 60% plants wilted, S—susceptible > 60% plants wilted. Evaluations were done during two seasons December 1985—April 1986 and August—December 1986 (Table 1). KAU Cluster was resistant to bacterial wilt during both the seasons. During December 1985—April 1986, except the F_1 hybrids Early Calwonder x KAU Cluster (54.54%) and Yolo Wonder Improved x KAU Cluster (52.50%), all were highly susceptible to bacterial wilt. During August—December 1986, the F_1 hybrid Yolo Wonder Improved x KAU Cluster (33.30%) was moderately resistant to wilt. Pant C-1 (51.6%), Hungarian Wax x KAU Cluster (53.30%), Early Calwonder x KAU Cluster (41.60%) and Sweet Red Cherry Pickling x KAU Cluster (49.80%) were moderately susceptible to bacterial wilt. The susceptible check Hungarian Wax showed 100% wilt incidence.

Resistance to bacterial wilt appears to be recessively inherited and as such its exploitation in F_1 stage is rather dim. The F_1 hybrid Yolo Wonder Improved x KAU Cluster is found promising.

Table 1
Bacterial wilt incidence as observed in spot planting

Lines	Wilt incidence during December 1985– April '86		Wilt incidence during August– December, 1986	
	%	Score	%	Score
KAU Cluster	14.17	R	8.33	R
Pant C-1	83.33	S	51.60	MS
Hungarian Wax x KAU Cluster	95.83	S	53.30	MS
Hungarian Wax x Pant C-1	100.00	S	90.00	S
Sweet Red Cherry Pickling x KAU Cluster	90.00	S	49.80	MS
Sweet Red Cherry Pickling x Pant C-1	100.00	S	100.00	S
Early Calwonder x KAU Cluster	54.54	MS	41.60	MS
Early Calwonder x Pant C-1	87.50	S	83.20	S
Cubanelle x KAU Cluster	91.66	S	85.00	S
Cubanelle x Pant C-1	90.80	S	90.00	S
Yolo Wonder Improved x KAU Cluster	52.50	MS	33.30	MR
Yolo Wonder Improved x Pant C-1	91.66	S	95.00	S

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