

Identification of sources of resistance to diseases of safflower

Fusarium wilt

M. phaseolina root rot

In vivo screening based on newly developed soil cup method has been carried out with 18 cultivars of safflower on *Macrophomina phaseolina*. The pathogen isolate *M. phaseolina* 4 (Mp-4) which is more virulent has been used in the screening. Out of 18 cultivars viz., PBNS-12, NARI-6, Sharada, A-2, PBNS-40 and SSF- 658 were resistant and NARI-NH-1, Nira, JSI-7, JSF-1, Bhima, NARI 38, Phule Kusuma, AKS-207, NARI-NH-15, DSH-129, Manjira and A-1 were susceptible to *M. phaseolina*.

Phytophthora damping off and seedling blight

Eleven safflower cultivars viz., SAF-1203-2(R), SSF-GMU-6878, PBNS-116, PBNS-123, PBNS-114, SAF-1205-(W), DSI-101, DSF-2014, DSI-118, SSF-GMU-4912 & Manjeera were promising (fig.) with less than 25% disease severity and other cultivars were susceptible to Phytophthora leaf blight (Table).

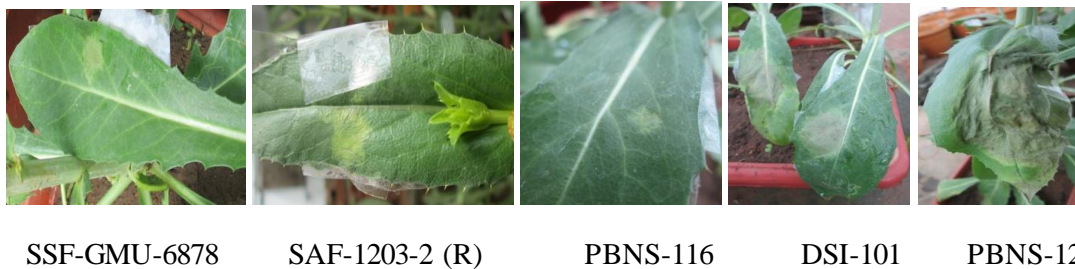


Fig: . Reaction of safflower cultivars to *Phytophthora nicotianae*

Table: . Reaction of safflower cultivars to *Phytophthora nicotianae*

S.No	Cultivar	Disease severity (%)	S.No	Cultivar	Disease severity (%)
1	PBNS-33	45	21	DSI-105	55
2	PBNS-58	35	22	DSI-106	45
3	PBNS-84	50	23	DSI-114	35
4	PBNS-114	20	24	DSI-116	55
5	PBNS-116	15	25	DSI-118	25
6	PBNS-123	20	26	a-134-7-101	40

7	SSF-1302	40	27	DSF-4	80
8	SSF-1310	45	28	DSF-5	55
9	SSF-1341	50	29	DSF-2014	20
10	SSF-1344	30	30	Nari-P1	30
11	SSF-1374	55	31	Nari-P2	50
12	SAF-1205-1(W)	20	32	Nari-P3	35
13	SAF-1205-2(R)	10	33	Nari-P4	45
14	SSF/GMU-6878	10	34	Nari-P5	55
15	SSF/GMU-4912	25	35	Nari-P6	60
16	SSF-1213-1	40	36	Nari-P7	55
17	SSF-1308	30	37	Nari-P8	40
18	DSI-101	20	38	Manjeera	25
19	DSI-103	30	39	PBNS-12	80
20	DSI-104	30	40	Nira	40

Reaction of safflower cultivars/breeding lines to *Phytophthora nicotianae*

In safflower, 3 wilt resistant breeding lines and one cultivar (W-05-2028, W-2026, W-2037-9 and Bhima) have shown less than 20% disease severity (Fig.6) and all other cultivars have shown > 40% disease severity (Table 3).

Fig. 6: Reaction of safflower cultivars to *Phytophthora nicotianae*

Table. : Reaction of some safflower breeding lines/cultivars to *Phytophthora nicotianae*

Breeding lines/Cultivar	Lesion size (mm)	Disease severity (%)
W-SFS-2035	13.0	35
W-521-5	13.0	35
W-05-2028	10.7	20
W-2026	10.0	20
W-SFS-2037	12.0	30
W-2037-9	10.0	20
W-521-3	16.3	55
W-2037-1	18.0	65
Bhima	12.3	30
SSF-658	16.7	60

SSF-708	16.3	60
Phule Kusuma	14.7	40
PBNS-12	19.7	85