

Results

1. Detached rice leaf assay for leaf blast infection

In the detached leaf assay foliar lesions caused by *Pyricularia oryzae* were evident from 3 days after inoculation. The laboratory error was greater than the field error in this experiment. Three days after inoculation, leaf decay (discoloration) was evident in some genotypes. By seven days, actively-sporulating spindle shaped elongated or round leaf lesions had been formed on many of the leaves (Plate 1).

Detached leaf floats inoculated with spore drop in two varieties *viz.*, Suraksha (3 lesions) and Thapachini (5 lesions/54 drops) showed low levels of infections (6-9%) (Table 2).

ASD16, VL154, Punshi, TKM9, CO47, Sasyasree, Triguna, Swarna, Vasumati, Annada, Lalat, Swarnadhan, Jaya and Sukaradhan showed 11-20% infection due to placement of spore drops on detached leaves.

While Swarnaprabha, Varalu, Bharani, PR113, Govind, Athira, Jyothi, Phouoibi, Sonasali and Vikramarya showed less than 30 lesions/54 spore drops placed on detached leaves, the remaining varieties showed more (31-49 lesions/54 spore drops). The susceptible check variety HR12 showed the highest number of lesion production (94 lesions/54 spore drops).

Irrespective of the ecosystem for which a variety was released for commercial cultivation, overall means showed 17 to 30 lesions/54 spore drops placed on detached leaves (Table 3). The coefficients of variation (CV%) for the ecosystems were moderate indicating the stability of leaf lesion development and was dependent on the numbers of varieties tested in an ecosystem and were within the expected limits for a large scale laboratory experiment using leaf samples of field grown rice plants.

Table 2. Detached leaf assay for the reaction to *Pyricularia oryzae* spore drops.

No.	VARIETY	Replication 1		Replication 2		Replication 3		Total lesions			Eco Sys tem
		Drop (No.)	Lesion (No.)	Drop (No.)	Lesion (No.)	Drop (No.)	Lesion (No.)	Drop (No.)	Lesion (No.)	(%)	
1	ADT36	18	6	18	4	18	7	54	17	31	IRE
2	ADT44	17	11	18	6	18	9	53	26	49	RS L
3	AISWARYA	15	15	18	5	18	1	51	21	41	IRE
4	AJAYA	18	18	18	9	18	2	54	29	54	IRM
5	AMULYA	18	7	18	6	18	12	54	25	46	SD W
6	ANJALI	18	16	18	7	18	7	54	30	56	RU P
7	ANNADA	18	1	18	2	18	7	54	10	19	RU P
8	ARVINDAR	20	20	18	3	18	6	56	29	52	IRM E
9	ASD16	18	0	18	3	18	3	54	6	11	IRE
10	ATHIRA	18	3	18	4	18	9	54	16	30	IRM E
11	BHARANI	18	3	18	7	18	4	54	14	26	IRM E
12	BHARATI DASAN	18	9	18	15	18	7	54	31	57	RS L
13	CO47	17	1	18	4	18	3	53	8	15	IRE
14	COTTONDORA SANNALU	18	3	18	7	18	7	54	17	32	IRE
15	DEEPTI	18	3	18	27	18	6	54	36	67	RS L
16	DRRH2	18	6	18	18	18	18	54	42	78	IRE
17	ERRAMALLELU	18	8	18	3	18	13	54	24	44	IRE
18	GOVIND	18	2	18	9	18	4	54	15	28	RU P
19	GR101	18	6	18	26	18	6	54	38	70	SC R
20	GR4	18	18	16	5	18	9	52	32	62	IRE
21	GR5	18	1	18	7	18	12	54	20	37	RU P

No.	VARIETY	Replication 1		Replication 2		Replication 3		Total lesions			Eco Sys tem
		Drop (No.)	Lesion (No.)	Drop (No.)	Lesion (No.)	Drop (No.)	Lesion (No.)	Drop (No.)	Lesion (No.)	(%)	
22	GURJARI	18	0	18	13	18	9	54	22	41	IRM E
23	HKR120	24	10	18	18	18	5	60	33	55	IRM
24	HKR126	18	1	18	6	18	12	54	19	35	IRM
25	HKR46	18	14	18	12	18	8	54	34	63	IRM
26	HPR 2143	18	10	18	9	18	14	54	33	61	HRI R
27	IR36	18	18	18	0	18	2	54	20	37	IRE
28	IR50	18	6	18	3	18	12	54	21	39	IRE
29	IR64	18	1	18	9	18	9	54	19	35	IRM E
30	IR72	18	5	18	5	18	10	54	20	37	IRM E
31	JAYA	18	4	18	6	18	1	54	11	20	IRM
32	JYOTHI	18	10	18	4	18	2	54	16	30	IRE
33	KANCHANA	18	0	18	12	18	5	54	17	31	IRE
34	KASTURI	18	14	18	18	18	17	54	49	91	SC R
35	KHARVELI	24	14	18	5	18	3	60	22	37	IRM
36	KRH2	18	7	18	6	18	6	54	19	35	IRM
37	KRISHNA HAMSA	18	8	18	9	18	6	54	23	43	IRM E
38	LALAT	22	4	18	6	18	0	58	10	17	IRM E
39	LEIMAPHHOU	18	3	18	15	18	12	54	30	56	HRI R
40	MAHSURI	18	8	18	15	18	12	54	35	65	RS L
41	MANA SAROVAR	18	4	18	7	18	9	54	20	37	RS L
42	NARENDRA DHAN80	18	18	18	5	18	6	54	29	54	RU P
43	NARENDRA DHAN97	18	1	18	9	18	8	54	18	33	RU P
44	NIDHI	18	17	18	6	18	9	54	32	59	IRE

No.	VARIETY	Replication 1		Replication 2		Replication 3		Total lesions			Eco Sys tem
		Drop (No.)	Lesion (No.)	Drop (No.)	Lesion (No.)	Drop (No.)	Lesion (No.)	Drop (No.)	Lesion (No.)	(%)	
45	PHALGUNA	18	9	18	9	18	15	54	33	61	RS L
46	PHOUOIBI	18	8	18	1	18	7	54	16	30	IRM E
47	POOJA	20	3	18	9	18	12	56	24	43	RS L
48	PR106	18	18	18	0	18	9	54	27	50	IRM
49	PR113	19	9	18	2	18	3	55	14	25	IRM E
50	PUNSHI	18	4	17	3	18	0	53	7	13	IRM
51	PUSA BASMATI1	18	15	18	3	18	6	54	24	44	SC R
52	PUSA SUGAND3	18	7	18	15	18	14	54	36	67	SC R
53	PUSA SUGAND5	18	7	18	9	18	12	54	28	52	SC R
54	RASI	18	9	18	3	18	5	54	17	31	IRE
55	SABITA	18	5	18	0	18	18	54	23	43	SD W
56	SALIVAHANA	18	11	18	9	18	7	54	27	50	RS L
57	SARJOO52	18	5	18	1	18	12	54	18	33	IRM
58	SASYASREE	20	4	18	0	18	4	56	8	14	IRM E
59	SAVITHRI	12	8	18	7	18	9	48	24	50	RS L
60	SONASALI	18	6	18	7	18	3	54	16	30	IRM
61	SUKARADHAN	18	8	18	1	18	2	54	11	20	HR UR
62	SURAKSHA	18	0	18	3	18	0	54	3	6	IRM
63	SWARNA	18	5	18	1	18	3	54	9	17	RS L
64	SWARNADHAN	18	3	18	6	18	1	54	10	19	RS L
65	SWARNA PRABHA	12	3	18	3	18	6	48	12	25	IRE
66	TARAORI BASMATI	20	6	18	4	18	12	56	22	39	SC R

No.	VARIETY	Replication 1		Replication 2		Replication 3		Total lesions			Eco Sys tem
		Drop (No.)	Lesion (No.)	Drop (No.)	Lesion (No.)	Drop (No.)	Lesion (No.)	Drop (No.)	Lesion (No.)	(%)	
67	THAPACHINI	18	2	18	3	18	0	54	5	9	HRI R
68	TKM9	20	4	18	3	18	0	56	7	13	IRE
69	TRIGUNA	18	0	18	7	18	1	54	8	15	IRM E
70	TULASI	18	3	18	6	18	10	54	19	35	RU P
71	VAJRAM	18	18	18	1	18	3	54	22	41	RS L
72	VANDANA	18	4	18	18	18	18	54	40	74	RU P
73	VARALU	18	3	18	0	18	9	54	12	22	RU P
74	VASUMATI	18	0	18	3	18	6	54	9	17	SC R
75	VIBHAVA	18	10	18	6	18	18	54	34	63	IRM
76	VIJETHA	18	15	18	0	18	5	54	20	37	IRM
77	VIKRAMARYA	18	8	18	4	18	4	54	16	30	IRM
78	VL154	18	1	18	4	18	1	54	6	11	RU P
79	VL82	18	5	18	9	18	14	54	28	52	HRI R
80	CHECK (HR 12)	18	42	18	32	18	38	54	94		

IRE = irrigated early maturity; IRME = irrigated mid-early maturity; IRM = irrigated medium maturity; RUP = rainfed upland; RSL = rainfed shallow lowland; SCR = scented rice; SDW = semideep water (30-50 cm water depth); DW = deep water (>50-100 cm water depth); HRIR/HRUR = hill rice irrigated/upland

Table 3. Summary analysis of lesion production in response to *Pyricularia oryzae* spore drops on detached leaves of rice varieties released for commercial cultivation in different ecosystem.

Particulars	Hill	IRE	IRME	IRM	RSL	RUP	SDW	SCR	Over ecosystems
Varieties (No.)	5	16	12	15	12	10	2	7	79
Mean leaf lesions (No.)	21.40	19.31	16.58	20.53	24.75	19.90	24.00	29.43	21.18
Standard deviation	12.54	9.69	6.37	9.52	8.75	10.39	1.41	12.93	9.84
CV (%)	58.61	50.16	38.44	46.34	35.35	52.19	5.89	43.95	46.45

Hill = hill rice irrigated/upland; IRE = irrigated early maturity; IRME = irrigated mid-early maturity; IRM = irrigated medium maturity; RUP = rainfed upland; RSL = rainfed shallow lowland; SCR = scented rice; SDW = semi-deep water (30-50 cm water depth); DW = deep water (>50-100 cm water depth).