



Effect of preservation conditions on *Pyricularia oryzae* conidia viability, Hangzhou, China, 1986-88. (1) Stored in aluminum box at ambient temperature, (2) stored in a desiccator at ambient temperature, (3) stored in a desiccator at 4 °C, (4) stored in a desiccator at -20 °C.

Methods for evaluating resistance to *Pyricularia oryzae* in rice

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We tested three methods for assessing partial resistance to blast (Bl) in rice. Partial resistance is used to mean incomplete or intermediate resistance, without any genetic connotation.

Seven Brazilian land races and one exotic cultivar were evaluated. Widely grown commercial IAC47 and introduced IRAT13 were included as susceptible and resistant checks.

Disease severities obtained through artificial inoculation with a race virulent

on all genotypes were compared with mobile nursery tests and the uniform Bl nursery (UBN).

For the inoculation test and the mobile nursery test, entries were sown in plastic trays (22 × 33 × 12 cm) containing soil fertilized with NPK + Zn and raised in the glasshouse. Each tray contained 10 randomly distributed genotypes sown one row each and thinned to 10 plants/row. Each method had three replications.

For the inoculation test, seedlings were inoculated at the fourth leaf stage with an aqueous spore suspension (2.5×10^5 spores/ml) of race IB-1, using De Vilbiss nozzle no. 15 attached to an air compressor. Inoculated seedlings were incubated at 100% relative humidity for 24 h and then transferred to the

inoculating 11 indica and japonica rice varieties.

Conidia stored for 4 mo in an aluminum box at ambient temperature died. Conidia stored for 4 mo in a desiccator retained their original level of viability; viability did not differ significantly with temperature. Viability of conidia stored in a desiccator for 9.5 mo varied significantly with temperature and fungal race (see figure). Except that fungal race ZA₆₃ changed to race ZA₆₁ after 9.5 mo, conidia retained their original level of pathogenicity. When spores are stored in a desiccator at -20 °C, it is not necessary to synchronize fungus sporulation with seedling growth for artificial inoculation. □

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glasshouse.

For the mobile nursery test, healthy seedlings at the fourth-leaf stage were exposed to natural inoculum by placing the trays adjacent to the heavily infected UBN for 48 h. They were incubated 24 h in moist chamber then transferred to the glasshouse.

The mobile nursery test was conducted when leaf Bl reached maximum severity in the genotypes being tested in the UBN. Average night/day temperatures during the experimental period were 21/29 °C ± 2 °C.

Plants in the inoculation test and mobile nursery were assessed separately and rated 0.25, 0.5, 0.75, and 1.0 for disease severity and color and type of susceptible lesion. Disease severities

were based on 10 plants/genotype.

Overall disease severities were considered to sum the effect of partial resistance components.

In the UBN, one row of each genotype was sown, with three replications. Disease severities were measured by using 0-9 scale (*Standard evaluation system for rice*).

The disease severities in the artificial inoculation test and the mobile nursery method indicated differences in partial resistance (see table). Because of high disease pressure in the UBN, fewer differences were found among the test genotypes.

The mobile nursery method could be used to identify levels of partial resistance to *P. oryzae* in advanced breeding lines. □

Leaf BI severity differences in 3 methods of screening.^a Goiânia, Brazil.

Genotype	Inoculation with virulent race IB-1 (MDS) ^b	Mobile nursery (MDS)	Uniform blast nursery (av. score) ^c
Ferrinho	0.78 a	0.74 ab	8.3 a
Oitentão	0.71 a	0.85 a	6.0 d
Cana Roxa	0.67 a	0.57 bcd	6.0 d
Pedregulho	0.63 ab	0.61 abc	7.0 bc
Paga Divida	0.62 ab	0.71 ab	6.0 d
IAC 47	0.43 bc	0.43 cde	7.0 bc
IRAT104	0.39 c	0.12 f	6.0 d
Chatão	0.37 c	0.37 de	6.6 cd
Arroz de Guerra	0.33 c	0.31 ef	7.6 ab
IRAT13	0.31 c	0.36 de	7.3 bc

^aIn a column, means followed by the same letter are not significantly different at the 5% level by Tukey test. ^bMean disease severity, av of 3 replications. 0 = highly resistant, 1 = highly susceptible. Severity values grouped into 0.25, 0.50, 0.75, and 1.0. Two types of susceptible lesions, type I and type II, were scored 0.25 and 1.0, respectively. Type I = restricted isolated susceptible lesion types with reddish brown margin, rarely coalesce. Type II = lesions with water soaked appearance, color ranging from white to grey, spindle shaped to irregular, rapidly coalesce. The infection coefficient multiplied with disease score for lesion type with severity values will give a maximum disease rating of 0.25 to lesion type I. ^c*Standard evaluation system for rice* 0-9 scale, av of 3 replications.

Insect resistance

Effect of rice gall midge (GM) resistance on parasitic behavior of *Platygaster oryzae* Cameron

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We studied the influence of GM resistance in rice on the parasitic activity of the GM parasite *Platygaster oryzae* Cameron during Oct 1987. Twenty rice accessions with different levels of GM resistance were raised in the field in 1-m rows, spaced 15 cm between hills and 20 cm between rows. GM incidence was recorded 30 and 50 d after transplanting. Parasitization was taken as the percentage of parasitized galls in each accession.

Five parasitized and five unemerged galls from each accession were collected and held in test tubes with water. Emerging adults were counted. Parasitization of rice GM ranged from 9.04 to 100%. The correlation between incidence of rice GM and its parasite

Correlation^a between GM and its parasite in rices with different resistance levels.

Accession	GM incidence (%)	Damage score	Parasitization (%)	Adults that emerged (no.)
RP1579-4-6-1	1.81	3	100.00	17
RP2362-110-40-1	3.63	3	50.00	26
IET9556	3.63	3	50.00	16
RP2432-105-7-1	3.63	3	66.66	25
IET9690	5.35	3	25.00	31
RP2199-41-25-34-55	5.55	5	40.00	30
IET9700	8.77	5	66.66	42
RP2199-3-3-1-1	9.09	5	40.00	42
RP2431-11-14-3	14.81	5	37.50	39
RP2311-276-71	14.81	5	50.00	42
TKM4	18.18	7	22.22	41
CO 27	27.27	7	40.00	46
CO 12	30.90	7	32.00	44
ASD9	38.18	7	45.76	43
TKM1	48.21	7	33.82	46
IR60	63.63	9	32.43	49
TNAU831520	81.48	9	9.04	45
CO 35	94.54	9	26.79	47
IR20	96.42	9	10.00	44
IR30	98.18	9	28.71	45

^a $r = (-0.627)**$, $Y = 52.923 + (-0.377) X$.

was negative. Resistant accession RP1579-4-6-1 had 1.81% GM incidence and 100% parasitization. TNAU831520 had 81.5% GM incidence and only 9.04% parasitization (see table). Adult parasites emerging from a single gall ranged from 16 to 47. In general, adult emergence was low from resistant rice accessions. □

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