

## Resistance of wild rices to bacterial blight (BB)

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We evaluated 198 wild rice accessions-10 wild species and 22 natural hybrids against six races of BB caused by *Xanthomonas campestris* pv. *oryzae* Feb-May 1989 in the screenhouse at IRRI.

Reactions to the BB races were tested using the clipping method. Five seedlings/pot per accession were inoculated at booting to heading stages. Lesion length was measured 18 d after inoculation, resistance was lesion length less than 10 cm, susceptibility was lesion length longer than 20 cm.

More than half the tested accessions showed resistance to all six races (Table 1). (Only a few cases of resistance to all six races in the Philippines are known in *O. sativa* varieties.)

Based on patterns of reaction to the six races in each accession, 18 are suspected to have the *Xa-3* gene, 11 the *xa-5* gene, 2 the *Xa-10* gene, and 4 the *Xa-14* gene (Table 2). The *Xa-4* gene, one of most popular resistance genes in *O. sativa* varieties of tropical Asia, was not found. ■

**Table 1. Best resistance to 6 BB races found in 198 accessions of wild species. IRRI, Feb-May 1989.**

Species	IRGC accession no.	Origin	Lesion length (cm)					
			1	2	3	4	5	6
<i>O. rufipogon</i>	104647	Thailand	1	1	1	1	1	1
<i>O. rufipogon</i>	104829	Thailand	1	1	1	1	1	1
<i>O. rufipogon</i>	104830	Thailand	1	1	1	1	1	1
<i>O. rufipogon</i>	104851	Thailand	1	1	1	1	1	2
<i>O. nivara</i>	104705	India	1	1	1	1	1	2
<i>O. officinalis</i>	105081	Myanmar	1	1	1	1	1	2
<i>O. officinalis</i>	105120	Philippines	1	1	1	1	1	1
<i>O. officinalis</i>	105121	Philippines	1	1	1	1	1	2
<i>O. officinalis</i>	105174	Malaysia	1	1	2	1	1	1
<i>O. eichingeri</i>	105160	Uganda	1	1	1	1	2	1

**Table 2. Distribution of BB resistance genes in 198 accessions of wild species. IRRI, Feb-May 1989.**

Genome	Species	Accessions tested (no.)	Occurrence (no.) of suspected gene				
			RRRRRR <sup>a</sup>	<i>Xa-3</i>	<i>xa-5</i>	<i>Xa-10</i>	<i>Xa-14</i>
AA	<i>O. rufipogon</i>	98	66	9			
	<i>O. nivara</i>	20	4	2	1	2	1
	Natural hybrids	22	8	2			3
A <sup>g</sup> A <sup>g</sup>	<i>O. barthii</i>	2					
A <sup>1</sup> A <sup>1</sup>	<i>O. longistaminata</i>	2	1				
A <sup>g1</sup> A <sup>g1</sup>	<i>O. glumaepatula</i>	1					
CC	<i>O. officinalis</i>	32	16	3	8		
	<i>O. rhizomatis</i>	4	3	1			
	<i>O. eichingeri</i>	3	3				
CCDD	<i>O. latifolia</i>	11	5		2		
	<i>O. grandiglumis</i>	3		1			

<sup>a</sup> RRRRRR indicates resistance reactions to six Philippine races of BB.

## Pest resistance—insects

### Biology of rice leafhoppers (LF) on susceptible IR36 and resistant TKM6

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IR36 is normally used as the susceptible check and TKM6 as the resistant check for rice LF *Cnaphalocrocis medinalis* (Guenée). We reared 200 LF from the first-instar larval stage to pupation in individual cages, on 30- to 35-d-old IR36 and TKM6 plants under standard greenhouse conditions.

Larvae that pupated were weighed individually. A growth index was calculated as the percentage of larvae pupating divided by the average larval period on each host.

Pupae were incubated and the first 20 pairs of moths emerging from each host were kept in cages for mating. Adult longevity of males and females was observed separately. Fecundity was measured as number of eggs laid by each female.

Larval survival, growth index, and pupal weight on susceptible IR36 were

significantly higher than on resistant TKM6 (see table). In the first 20 pairs of moths emerging from the hosts, adult longevity on TKM6 was not significantly different from that on IR36. On the average, female moths laid the same number of eggs. In a follow up study, adult LF emergence was 55% on IR36 and 31% on TKM6. ■

**Biology of *C. medinalis* raised on susceptible IR36 and resistant TKM6.<sup>a</sup>**

Variety	Larvae becoming pupae (%)	Growth period (d)	Growth index	Pupal weight (mg)	Adult longevity (d)		Fecundity (eggs/female)
					Female	Male	
IR36	93	18.2	5.1	21.4	7.5	8.2	86.6
TKM6	81	19.1	4.2	17.9	9.0	8.6	99.6
Diff.	12**	-0.9**	0.9**	3.5**	-1.5 <sup>ns</sup>	4.4 <sup>ns</sup>	-12.8 <sup>ns</sup>

<sup>a</sup>ns = not significant; \*\* = significant at *P* < 0.01 level by *t* test.