isolates pathogenic on rice, and almost all of the isolates were female sterile. The ascospores obtained in most crosses were low viability. Under the natural condition, only the anamorph of *M. grisea* was observed. In lab, perithecia were obtained by coinoculating the compatible improved fertility isolates on rice. If sexual reproduction of *M. grisea* occurred on rice plant, it is scarcely and impossible for the disease cycle. It should be noted that isolates pathogenic was highly fertile to some other gramineae than to rice, such as to *Elesine coracana* (finger millet). Isolates pathogenic to rice seemed to lose their ability for sexual reproduction, but this process was not yet complete and a few isolates were still fertile.

Based on the absence of sexual reproduction, it could be concluded that different mating types were diverse clones, which had been genetically separated for a long time (see table). Since the isolates were inter-sterile, the polymorphism indicated that the epidemics within a single rice field could be due to different clonal populations. It did not provide evidence for the existence of sexual reproduction of *M. grisea* in the filed. □

Distribution of mating type and female fertile isolates of *M. grisea* in China.

Province (City) sampled	Isolate tested			Fertile isolate				Female isolate	
	Total	Fertile	Sterile	Mat1.1		Mat1.2		No.	Frequency (%)
				Male	Female	Male	Female		
Fujian	34	22	12	13	0	9	0	0	0.0
Guangdong	22	16	6	6	2	8	0	2	9.1
Guangxi	10	5	5	0	0	5	0	0	0.0
Guizhou	34	21	13	14	1	5	1	2	5.9
Hainan	6	4	2	2	0	2	0	0	0.0
Hebei	14	12	2	10	0	2	0	0	0.0
Hubei	6	6	0	1	1	1	3	4	66.7
Hunan	47	23	24	7	3	11	2	5	10.6
Jiangxi	8	3	5	1	0	2	0	0	0.0
Liaoning	11	4	7	4	0	0	0	0	0.0
Shanghai	11	8	3	8	0	0	0	0	0.0
Shanxi	16	6	10	5	0	1	0	0	0.0
Sichuan	25	23	2	13	0	10	0	0	0.0
Yunnan	63	39	24	18	0	12	9	9	14.3
Zhejiang	70	50	20	37	2	9	2	4	5.7
Total	378	242	135	139	9	77	17	26	6.9

Effects of endosymbiote on feeding, development, and reproduction of brown planthopper, *Nilaparvata lugens* stål

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The biotype 1,2, and 3 of *N. lugens*

Table 1. Effect of symbiote on nymphal feeding preference of *N. lugens* on different rice varieties[a].

Biotype	Variety	Feeding preference (%)	
		Aposymbiotic	Symbiotic
1	TN1	33.3	27.7[ns]
	Mudgo	17.7	37.7[*]
	ASD7	49.1	34.7[ns]
2	TN1	32.6	29.3[ns]
	Mudgo	24.5	39.2[ns]
	ASD7	43.0	31.6[ns]

[a] ns and * were not significant and significant at 0.05 level, respectively.

obtained from IRRI, the Philippines, were reared continuously on susceptible variety TN1, resistant varieties Mudgo (*Bph1*), and ASD7 (*Bph2*), respectively. To eliminate the yeast-like symbionts (YLS) in *N. lugens*, about 60-d old plants of TN1 bearing 3-d old eggs were laid at 26 ℃ for 2 d and exposed at 35 ℃ in an incubator for 3 d. After a hot treatment, the plants were transferred into an incubator at 26 ℃ for egg development. The hatched aposymbiotic nymphs were employed in this experiment.

Results indicated that there were significant differences between aposymbiotic and symbiotic nymphs of biotype 1 in feeding preference to Mudgo (Table 1). The aposymbiotic nymphs from biotype 1 and 2 fed much more on TN1 and ASD7 than the symbiotic ones did.

All of the three biotypes of aposymbiotic *N. lugens* had significant longer nymphal duration and less eggs than symbiotic ones had. But there were no significant differences in the nymph survival rates between aposymbiotic and symbitic biotypes (Table 2). □

Table 2. Effect of symbiote on nymphal duration, survival rate, and female fecundity of 3 biotypes of *N. lugens*[a].

Biotype	Variety	Nymphal duration(d)		Survival rate(%)		Fecundity(eggs/♀)	
		Aposymbiotic	Symbiotic	Aposymbiotic	Symbiotic	Aposymbiotic	Symbiotic
1	TN1	15.5	12.3*	77	86	52.4	82.9*
2	TN1	16.7	11.5**	77	85	45.4	72.3*
	Mudgo	17.9	12.8**	75	75	12.0	56.3**
3	TN1	16.7	12.2*	76	79	53.3	79.3*

[a] * amd ** were significant at 0.05 and 0.01 levels, respectively.

Effects of 6-BA and MET on the induction of adventitious buds from rice seedlings and its application

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Different levels of 6-BA (6-Benezylamino purine) and MET (Paclobutrazol) were added into MS media to culture the mature seeds of six varieties and two F_2 populations of Nanjing11 (indica)/Balilla (japonica) and Dular (indica)/Balilla(japonica). Results were as follows: 1) 6-BA was effective in inducing the formation of adventitious buds (Table 1). Only using MET could not induce adventitious buds formation. Compared with the use of 6-BA only, it was more useful for inducing the adventitious buds by using MET and 6-BA together, especially for japonica rice. For example, the rate of induced adventitious buds from the seedlings of the variety of 3037 (indica) was 69.2 % when 20 mg/L of 6-BA and 2.5 mg/L of MET were used together, while it decreased to 30.0 % when only 20 mg/L of 6-BA was used. The rate of induced adventitious buds from Balilla was 82.3 % when 40 mg/L of 6-BA and 2.5 mg/L of MET were used, while it was 6.7 % when only 40 mg/L of 6-BA was used. Used together with MET (2.5 mg/L), 20 mg/L of 6-BA was the most suitable level for inducing adventitious buds from the seedlings of indica rice, and 40-100 mg/L for japonica rice (Table 1 and Table 2). It could be deduced that indica rice was more sensitive to auxin and could get higher frequency of induced adventitious buds under relatively low 6-BA

Table 1. Effects of 6-BA on the induction of adventitious buds from rice seedlings[a].

Variety	Level of 6-BA(mg/L) 0			5			10			20			40			200		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
3037	21	0	0	12	0	0	18	4	22.2	30	9	30.0	21	9	42.9	18	10	55.6
N11	24	0	0	36	0	0	27	5	18.5	33	10	30.3	24	12	50.0	18	15	83.3
IR36	30	0	0	24	0	0	36	12	33.3	36	23	63.9	36	30	83.3	18	14	77.8
Youmang-Zaoshajing	24	0	0	27	0	0	36	4	11.1	27	4	14.8	33	7	21.2	12	3	25.0
Akihikari	36	0	0	48	0	0	45	4	8.9	36	5	13.9	45	5	11.1	24	5	20.8
Balilla	21	0	0	39	0	0	39	4	10.3	33	2	6.1	30	2	6.7	18	2	11.1

[a] A = No. of seeds inoculated, B = No. of seeds induced adventitious buds, and C = The rate of seeds induced adventitious buds(%).